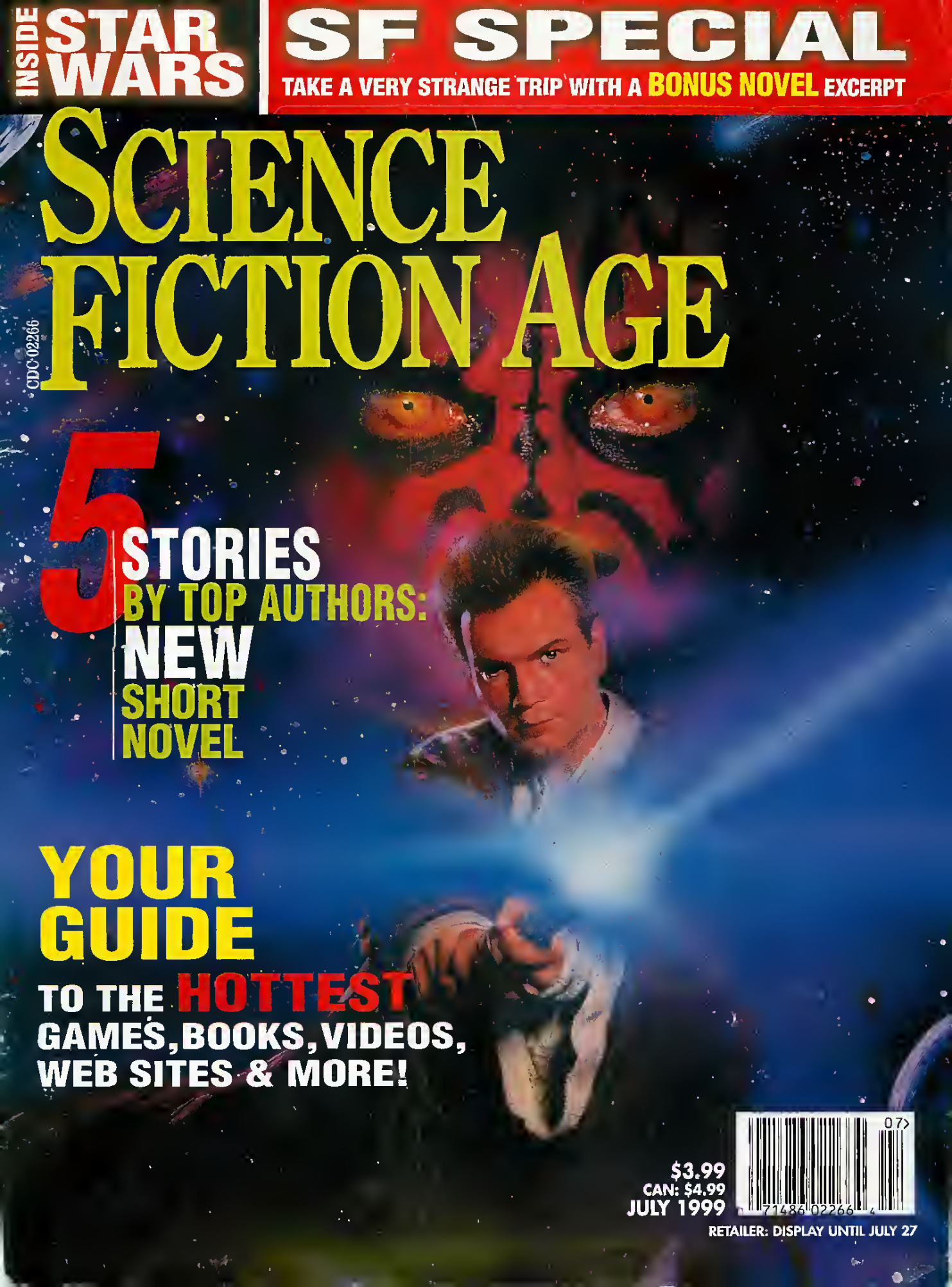
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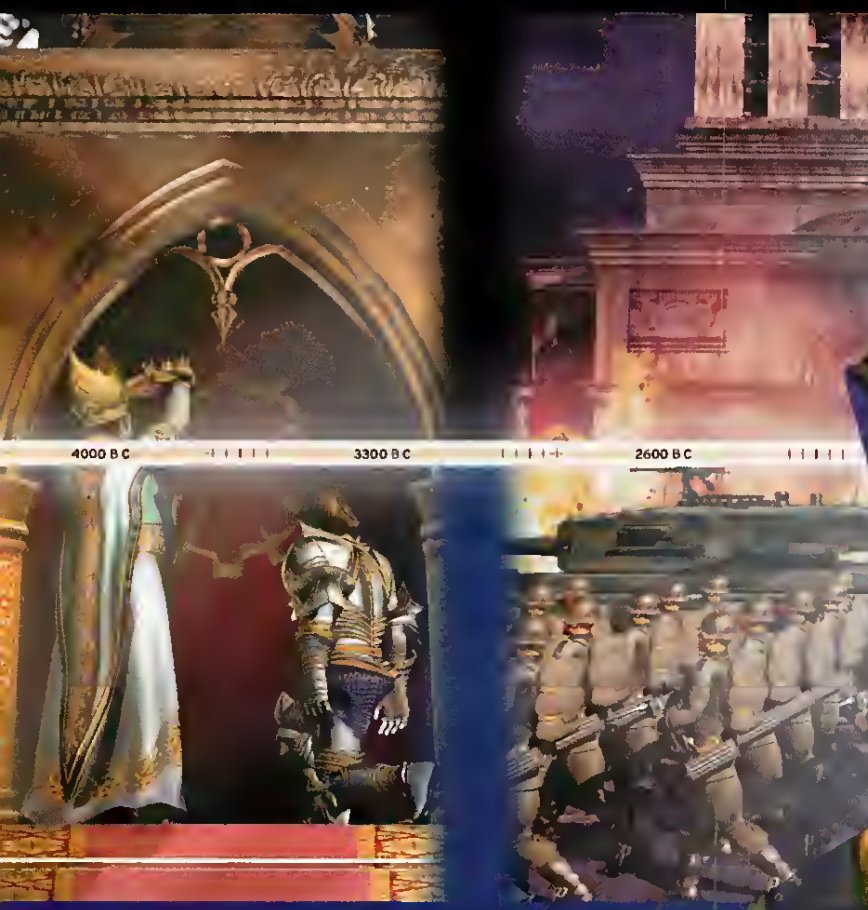
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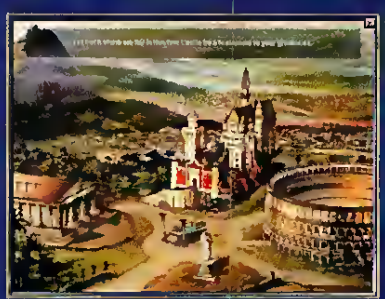
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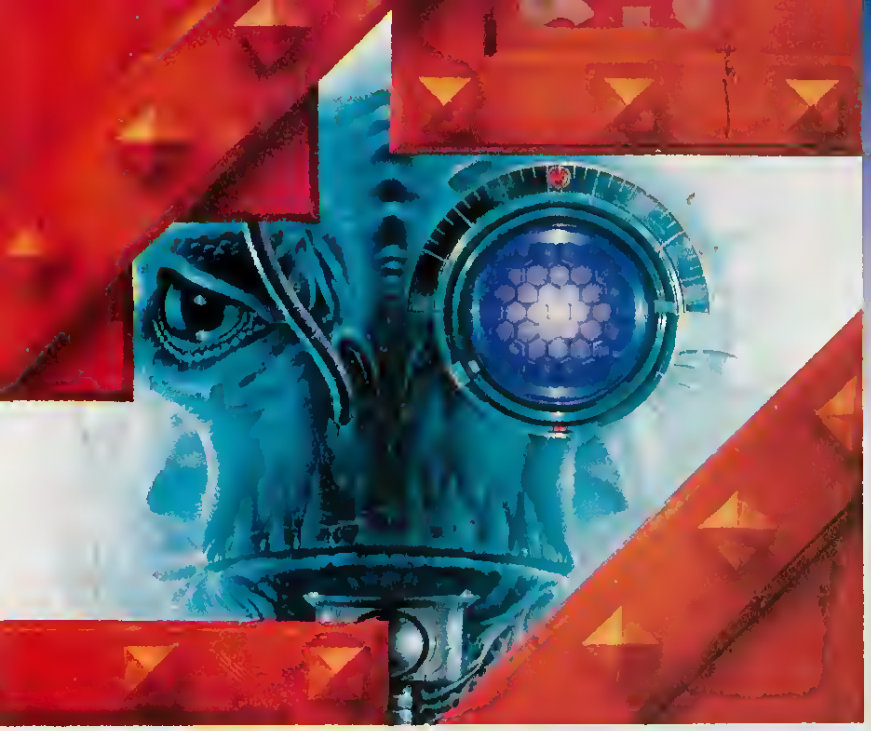
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COVER: George Lucas' *Star Wars Episode I—The Phantom Menace* will soon be a phantom no more. Story on page 24. Art by John Monteleone. ABOVE: Artist Bruce Jensen opens a new window on the alien. Visit his Gallery on page 66.

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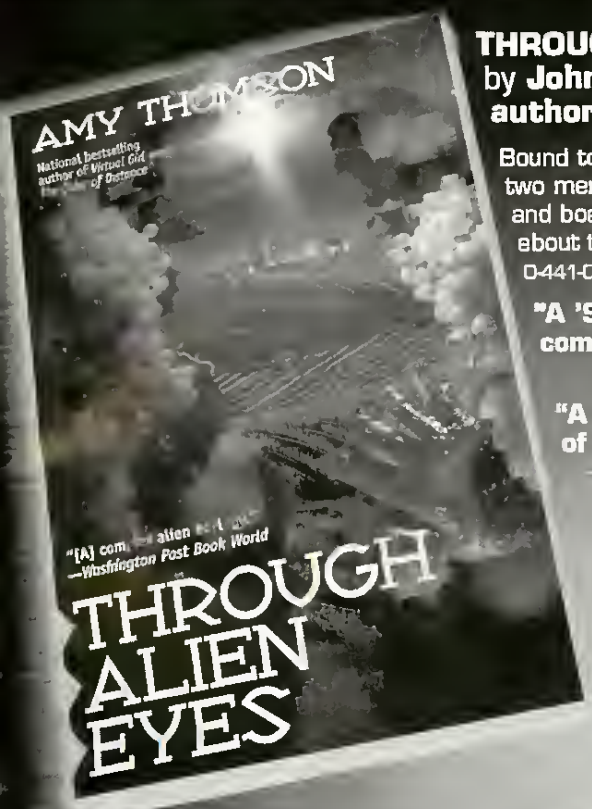
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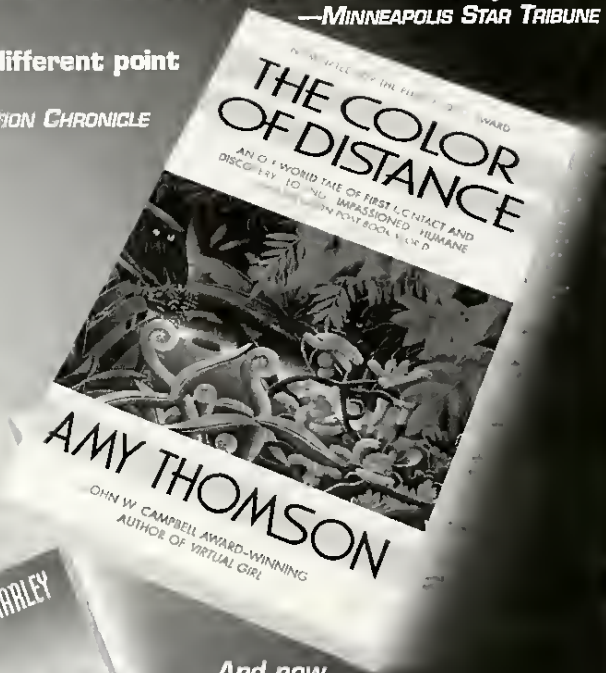


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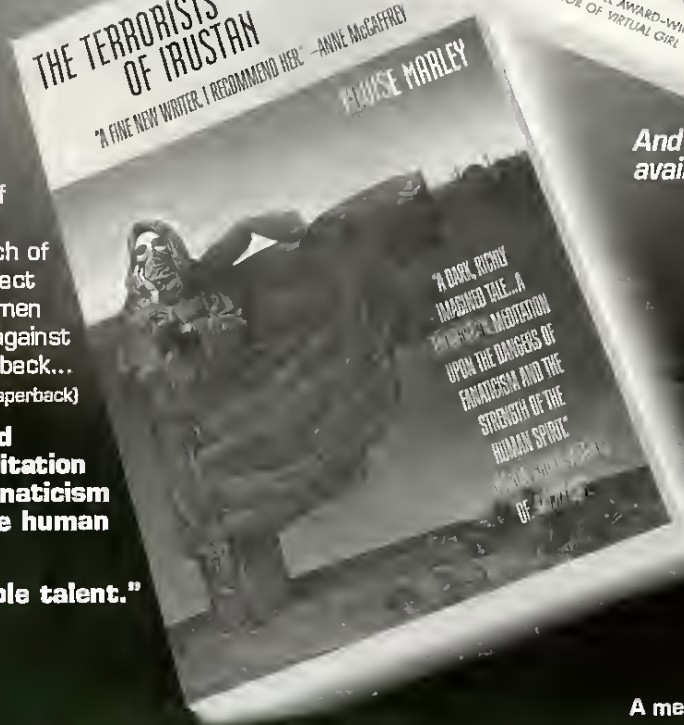


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What is an editor? Let me count the ways.

THERE SEEMS TO BE SOME CONFUSION AS to what an editor is. Based on your mail, what I've been hearing from readers and writers on the convention circuit, and what I've been reading in the pages of other genre magazines, I thought it best that we try to settle the issue here and now.

So: What is an editor?

An editor is more than the chichéd image of a failed writer seeking an easier form of sustenance, looking on in jealousy at those who have managed to figure it all out. Whatever one's position in life, editor or predator, it's a crime for a person to feel as if one has settled and accepted, rather than desired and embraced, where one is.

An editor should not be in competition with his writers for ideas, fame, or awards. There should be no envy in an editor's manner. Whatever accolades one's writers win are his (or hers) as well, just as if it had happened to one's own child.

An editor should not be in the job simply to have an easy excuse to meet his or her favorite writers. If that's the case, to paraphrase an old chestnut, I feel you should rethink things, for rather it is by their works that you should know them.

An editor is a host, and the pages of the magazine are the walls of the room in which he holds his parties. When you, the reader, leave the Studio 54 of Science Fiction, it isn't necessarily important that you enjoyed every guest equally (though we'd love that to be the case), only that you had enough fun to want to come and sample the *hors d'oeuvres* again.

An editor should know that in the judgment of history, words and pictures trump dollars and cents. But an editor should also know that if you can't figure out a way to keep bringing in the latter, you won't be able to continue offering readers the former for long.

An editor should know the following names: Hugo Gernsback, John W. Campbell, Horace Gold, Judith Merrill, Damon Knight, Terry Carr.

Good writing should give an editor goosebumps, but goosebumps should not come easily. An editor knows that it is foolish to attempt to wish them into existence before their time.

A seasoned editor knows from long experience that the first rule of publishing a magazine is: Use someone else's money.

An editor knows that with the endless submissions of short stories, impersonal rejection slips become necessary, no matter how indefatigable one feels going into the job. Still, an editor should never stop feeling guilty about having to resort to them.

An editor should know that there are many sins to be avoided. One is a lapse in judgment allowing a run-of-the-mill story by a well-known writer to be accepted. Another is allowing overwork to cause you to reject a worthy story by an unknown. An editor also knows that commission of the latter sin is far worse than the former.

An editor knows that there's more to putting a magazine together than merely having a good eye for fiction—one must write captions and cover blurbs, help choose the artwork, decide how to jigsaw-puzzle the words around the advertisements, and so on. An editor must know that many unexciting things come with the territory, and be comfortable wearing those other hats.

An editor often has more faith in his writers than the writers have in themselves.

An editor knows that the publisher is not his enemy. An editor also knows that his writers might not agree with this fact. An editor must understand this need of human nature.

An editor should know more than just how to push the envelope; he should also know *when*. Although as far as returning rejected manuscripts, he must also know never to lick the envelope closed.

An editor is only as good as his writers. But don't let the writers know that. Humility is a virtue.

Nothing stirs more hope in an editor than the sight of the mailman coming through the door lugging tubs filled with a new batch of unopened manila envelopes.

If you are a writer, do not think that an editor will not remember you. Whether he buys your story or not, you have made an impression. Make it a good one.

An editor is not a writing workshop. An editor can't be, not with hundreds of submissions a month, and only 24 hours in the day. But a writer's spouse is not a writing workshop either.

An editor should not talk down to his readers. He should assume them to be as smart or smarter than himself.

An editor of a magazine must believe that the short-story form is inherently better than that of a novel. A book editor must be passionately convinced of the opposite. Yet they still must be able to meet in bars at SF conventions without behaving like Democrats and Republicans.

An editor should be able to live with the fact that hardly anyone reads to the end of an Editorial anyway, save for the editor's mother.

Scott Edelman

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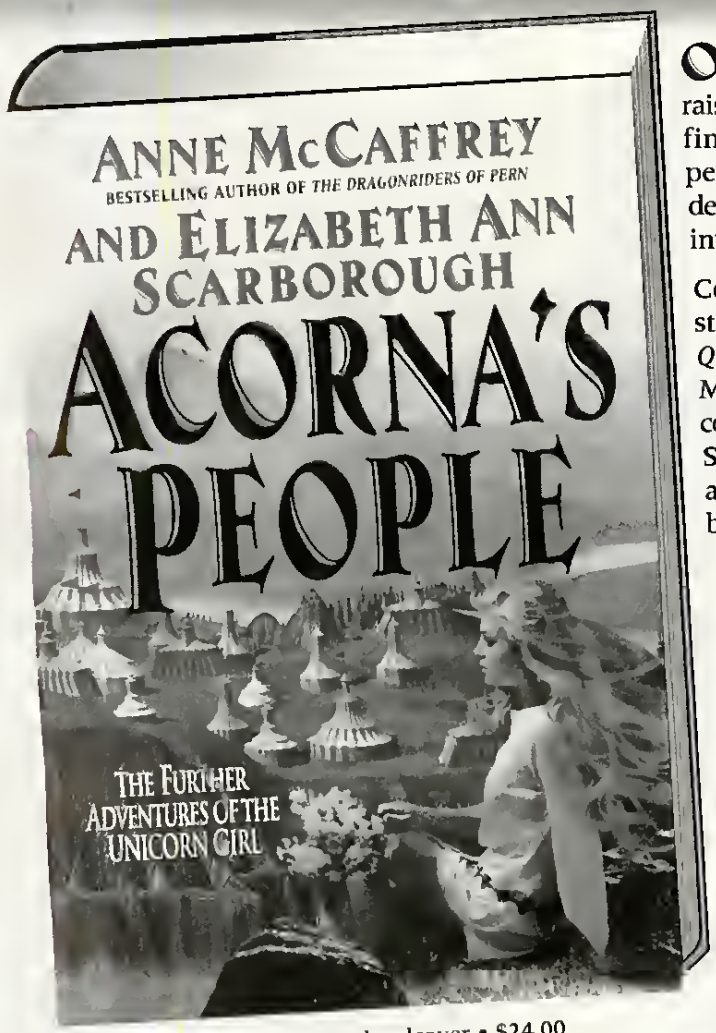
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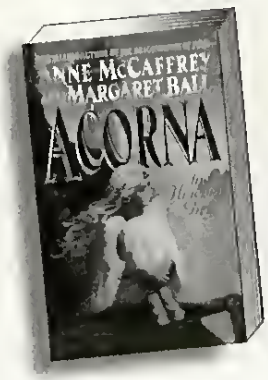
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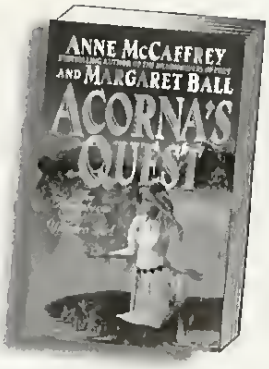


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Dear Sirs:

I was disturbed to read in the Letters column of your magazine the criticism of Robert Heinlein's book *Starship Troopers* inferring that the author was a fascist. If by this the letter writer assumes associated guilt—that the author always speaks through the words and actions of his characters—then by the same logic Charles Dickens was a thieving, murdering pimp, because Bill Sykes was.

When I first read *Starship Troopers* in my undergraduate days, the verbal destruction of the values of the Western world disturbed me. I can only plead the lateness of the hour in which I read the relevant chapter. I knew instinctively that the teacher of impressionable minds, not much younger than my own, was wrong. It made me think to find the flaw in the spurious argument—that was the disturbing part, that I had to work at the defense.

If the writer dislikes *Starship Troopers* then that is a matter of taste. Personally, I don't like *Stranger in a Strange Land*, but that is just a matter of taste. I probably like more action in my Sci-Fi. If the writer, however, does not like the idea that Sci-Fi examines our society by holding facets of it up to a convex mirror, then perhaps he should leave the genre alone. Sci-Fi has always done that since the time of Wells, and incidentally, he himself was rather to the left of pink in his political writings.

C.R. Neal

Dear Scott:

Great subject! (Science Forum, May 1999: Will the International Space Station help or hinder humanity's future in space?) Interesting viewpoints about the space station. I lean toward the position of space as a new frontier ... people will go, learn to live there and some will die there. Each death will advance our knowledge and understanding of this new environment. This should not be a reason to throw up limitations and barriers, but don't be surprised when the next 10 fools go out and do the same thing. This is natural selection at work. Danger also seems to bring out the best in the people still alive; competency advances knowledge.

Sadly, I also have to agree that risk and risk-taking has been driven out of American society (thank you, trial lawyers). Instead of each person being responsible for their actions, America has turned this over to the government, with the natural bureaucratic response of no one responsible, everyone pays anyway. (Example: the gun went off accidentally, it wasn't my fault, welfare, etc.) I do not advocate gunslinging and shoot first, ask questions later, but there has to be a point where we take responsibility for the situations we are in today. The splintering of American society has come home to roost and a lot of people are shocked at what they see. Thank you for a job well done.

Ann Ketron

Dear Mr. Edelman:

I just picked up the March issue of *SF Age*. Mostly, it was pretty good, but I have a couple of comments.

I'm not sure Charles Sheffield has really thought through his "balanced drive" idea. Sure, balancing 100 gees of thrust with 100 gees from a condensed-matter disk up front sounds like a good idea. But—what happens when you turn the drive off? The crew gets crushed against the forward bulkhead, that's what. The ship would have to be under perpetual acceleration in order for anyone to live in it. Without some sort of vacuum energy extraction, or at least broadcast power from some other source, there'd be no way to keep up thrust indefinitely. Besides, how could anyone ever get on or off the thing if it never stops thrusting? Any ship rendezvousing with it would have to be able to accelerate to 100 gees itself, and then it would have to have a balancing mass, so it becomes a recursive problem.

Also, Mr. Edelman, I think you were off the mark in your comparison of the deaths of characters on *Babylon 5* and *NYPD Blue*. You claim that the death of the *NYPD* character was due simply to "an accident of casting," whereas the death of Sheridan on *B5* was an organic part of Straczynski's masterplan. I think you're forgetting that Sheridan himself was created as a result of "an accident of casting." Jeffrey Sinclair was supposed to be the hero, but Michael O'Hare decided to leave, and Straczynski took advantage of the situation to create a new character which enabled him to improve on his original plans. As Straczynski has repeatedly stated in his online correspondence, the process of creating a TV series is subject to unpredictable changes due to real-world matters such as actors' career choices and studio politics. Many of the original pilot's characters were replaced for the series, and their intended story arcs transplanted to other characters. Talia Winters' "death of personality" and the return of Lyta Alexander came about because of personality clashes between Straczynski and Andrea Thompson, according to some sources. When Claudia Christian left the show, her intended arc with Byron was given to Lyta. And of course, the whole structure of the 4th and 5th seasons was changed due to the uncertainty that the series would be renewed for a 5th year. The *B5* saga was just as much influenced by "accidents of casting" and other external factors as *NYPD Blue* or any other series. The fact that JMS was able to maintain the appearance of a unified saga throughout is a credit to his adaptability. Besides, it's not just television writers who have to adapt to external factors. Prose writers have to fit their works into specified lengths, address editorial concerns, rework their plots if similar stories get published, and so forth. So instead of complaining that *NYPD* was "contaminated" by external concerns, you should commend Straczynski, as any writer should be commended, for adjusting to the unpredictable and keeping his vision intact (or at least convincingly faking it).

Christopher L. Bennett

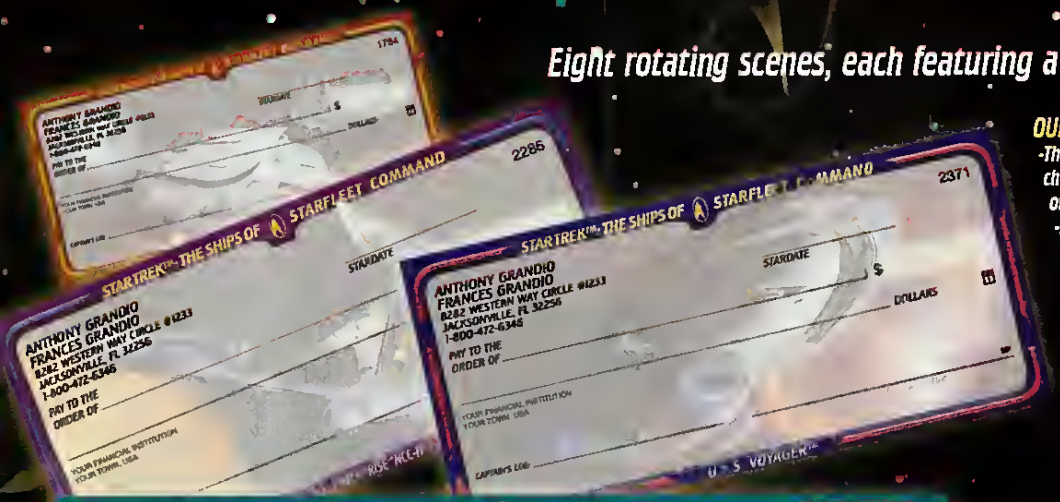
But that's just the point—Straczynski, always aware of the exigencies of series television, had a contingency plan designed for every character, should the actors have health or contractual issues. The result turned accidents into opportunities, giving the appearance of an organic, seamless whole, something rarely visible in episodic television. As for your comment regarding Charles Sheffield, we'd prefer to let the author speak for himself:

"The ideas behind the balanced drive are set out in detail in the McAndrew story 'Moment of Inertia,' while the proposal for a vacuum energy drive can be found in another McAndrew story, 'All the Colors of the Vacuum'—the first place, at least according to Arthur C. Clarke, where the idea of such a drive was proposed. Both these stories originally appeared in Analog *magazine, and back issues of monthly publications are often hard to find. However, these two stories, along with seven others, can be found in* The Complete McAndrew, *to be published late this year or early next by Baen Books. For anyone who wants a fuller description of the working of the balanced drive and the theory behind vacuum energy extraction, this book also contains a forty page factual appendix."*

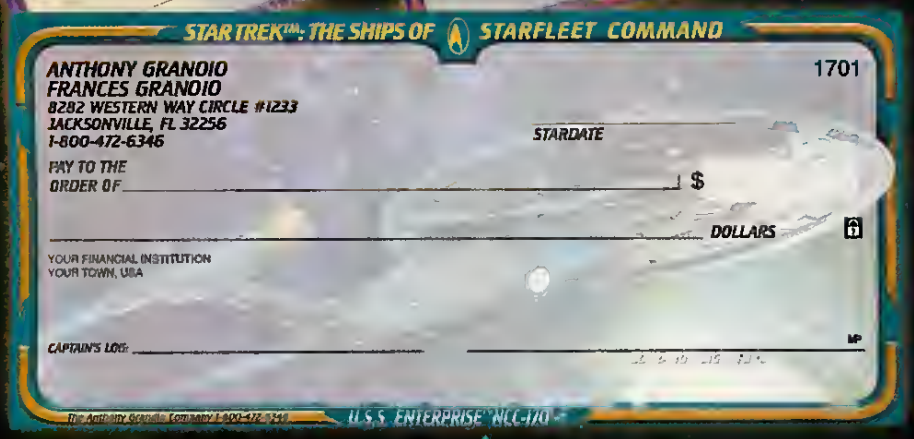
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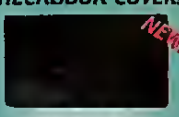
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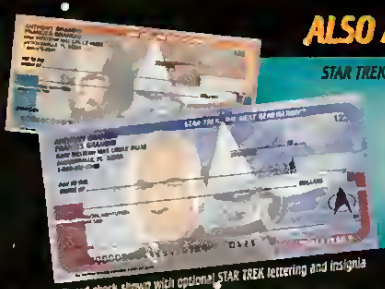
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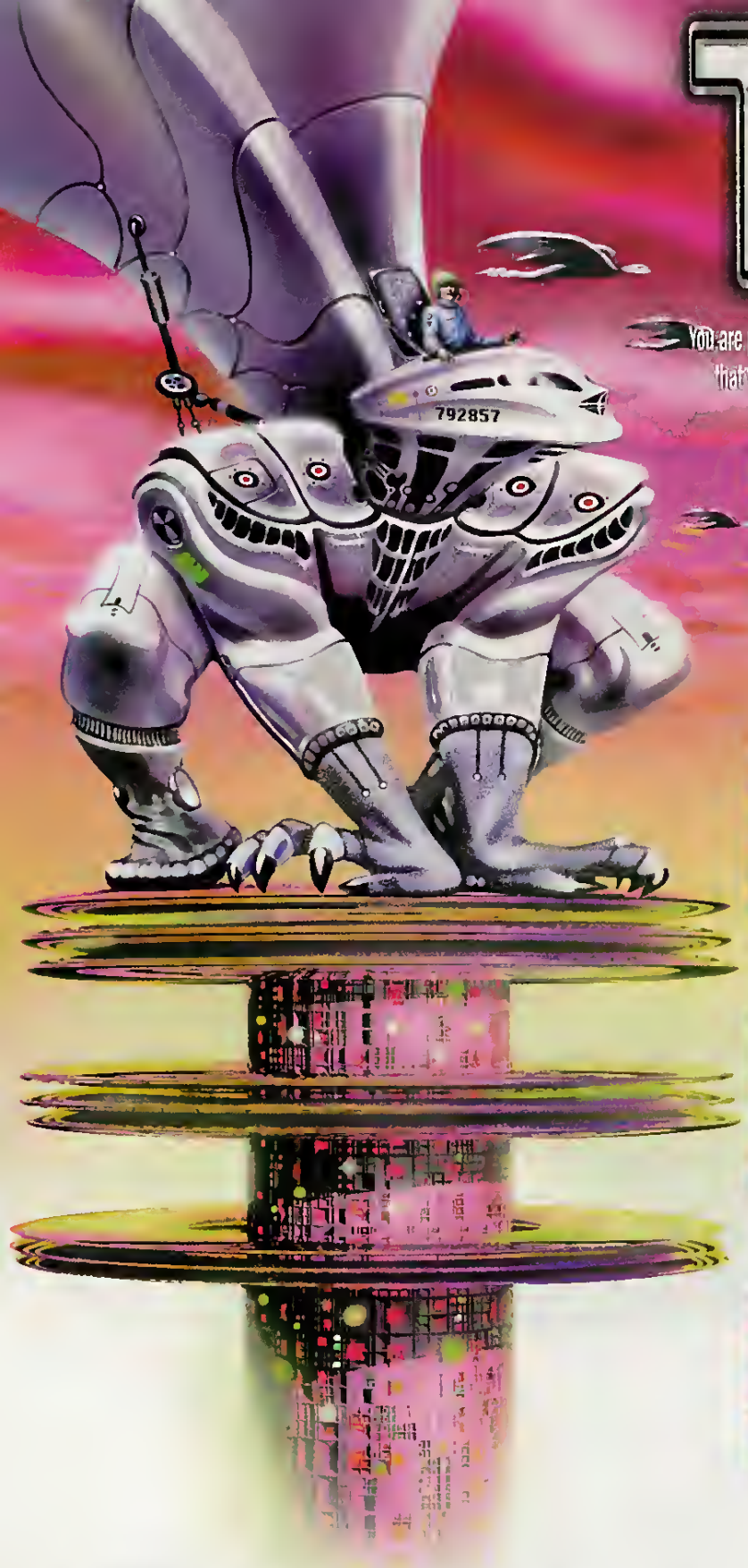
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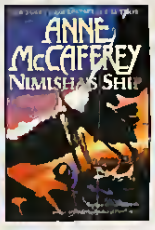
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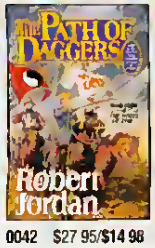
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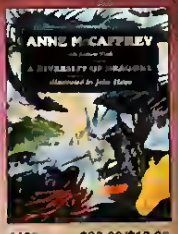
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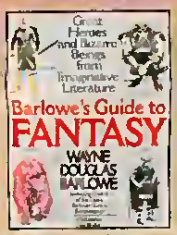


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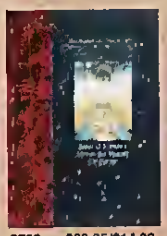
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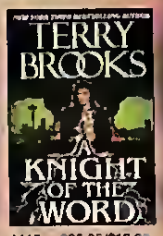


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By Mark W. Tiedemann, Paul Di Filippo, and James Lowder

Only the best of our best can be Science Fiction Grand Masters.



ABOVE: SF Grandmaster Robert Heinlein helped build tomorrow, as seen in Wayne Barlowe's classic cover to Waldo & Magic Inc.

THE SFWA GRAND MASTER AWARD HONORS "a lifetime body of work, of a quality that helped to shape the entire course of science fiction writing." That according to the Introduction by Frederik Pohl to volume one of ***The SFWA Grand Masters*** (Tor Books, hardcover, 384 pages, $24.95), the first of a three-volume set showcasing work by the recipients of this particular honor.

All too often, recognition of the value of a writer's work comes only posthumously. The Grand Master was established with the intention of granting the award during the author's lifetime, so that he or she would know what their work meant to the field. In the larger realm of letters, there are awards for specific work, but only the Nobel Prize for Literature comes to mind as an equivalent, honoring a writer for ... well, not specifically for a contribution to a given field of writing; no, the Nobel is a more nebulous award for a contribution to the human condition. It does not recognize a particular genre as having unique properties that ought to be recognized for its special influence upon letters. In fact, there is no recognition of "genre" as such, and the craft seems secondary to the more grandiose effects of a body of work toward elevating humanity and advancing the cause of civilization.



Interesting that a literature which is, in many ways, precisely about that elevation and advance has never seen one of its practitioners honored by such a prize ...

No matter. The Grand Master Award serves, albeit on a smaller but no less significant scale. The recognition of a writer's lifetime achievement, especially during that writer's lifetime, is an irreducibly fine act. The fact that such influence is seen and judged worthy and relevant is an indication of the esteem and perception of the practitioners of an art of which, when all else is said and done, they are still truly fans.

One of the useful byproducts of this recognition is the preservation of work that, in other genres, might easily be lost. If we stab the calendar at the launch of *Amazing Stories* in 1926 as the "official" start of the history of Science Fiction as we know it, then already in 73 years many writers have been forgotten. Awards like the Grand Master serve to fix in the collective memory writers who might, through the benign neglect of history, be lost.

There are currently 15 Grand Masters. The five collected in volume one are Robert A. Heinlein, Jack Williamson, Clifford Simak, Fritz Leiber, and L. Sprague DeCamp. Frederik Pohl has edited the book with a fine sensibility. He has written brief personal introductions to each writer's set of stories—he knew them *all*—and has chosen from each one story that could be considered a "hit." Heinlein's "The Roads Must Roll," Williamson's "With Folded Hands," Simak's "Grotto of the Dancing Bear," Leiber's "The Mer She," and DeCamp's "A Gun For Dinosaur." The other pieces are less immediately obvious choices. As well, Pohl has chosen, where possible, a piece of nonfiction.

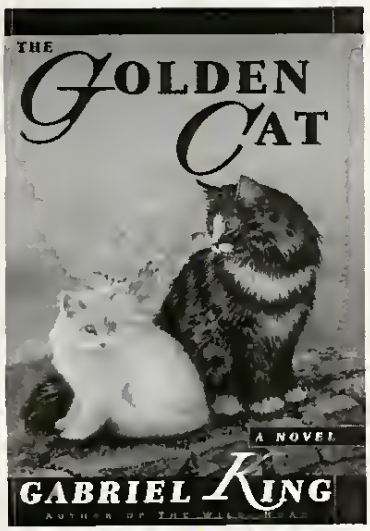
Going over these stories, some familiar, others less so, one is struck by the fundamental intelligence of these writers. There is an inexorable rightness to the way in which they told their stories and, despite the dated conventions apparent in some, an impressive grasp of how often unimaginable changes can become mundanely pertinent and unnervingly relevant.

Heinlein, of course, was a master at taking the extraordinary and showing how it would profoundly affect the most common aspects of our lives. Rereading "The Roads Must Roll," it is tempting to credit him with the kind of prescience that the well-intentioned uninitiated tend to accord Science Fiction with its eerie similarity to the railroad strike of the 1950s that Harry Truman broke by using the army to keep the trains running or, a little closer to our time, the complaints and problems of our air traffic controllers. But all he did, which seems so marvelous in the package he created, was to apply common sense and an understanding of human nature to the forces of historic change. Like-

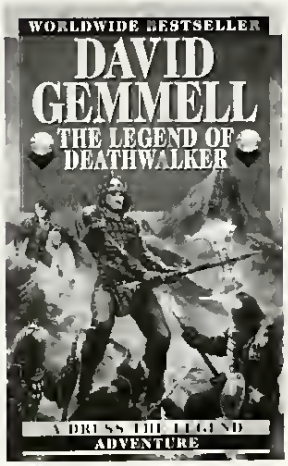
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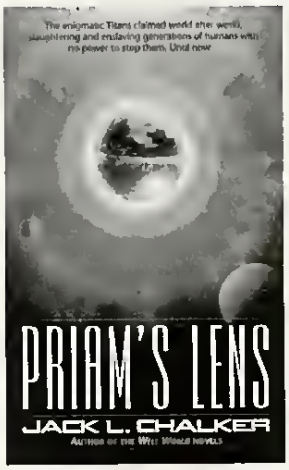
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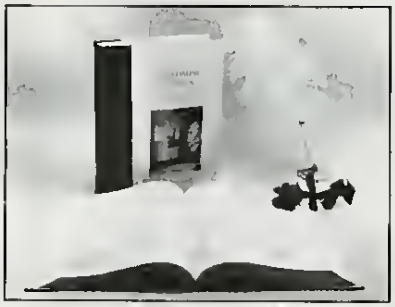
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The International Library of Poetry to award 250 total prizes to amateur poets in coming months



The International Library of Poetry publishes the work of amateur poets in colorful hardbound anthologies like ***The Coming of Dawn****, pictured above. Each volume features poetry by a diverse mix of poets from all over the world.*

Owings Mills, Maryland – The International Library of Poetry has just announced that $48,000.00 in prizes will be awarded over the next 12 months in the brand new North American Open Amateur Poetry Contest. The contest is open to everyone and entry is free.

"We're especially looking for poems from new or unpublished poets," indicated Howard Ely, spokesperson for The International Library of Poetry. "We have a ten year history of awarding large prizes to talented poets who have never before won any type of writing competition."

How To Enter

Anyone may enter the competition simply by sending in ***ONLY ONE*** original poem, any subject, any style, to:

The International Library of Poetry
Suite 17518
1 Poetry Plaza
Owings Mills, MD 21117-6282

Or enter online at **www.poetry.com**

The poem should be no more than 20 lines, and the poet's name and address must appear on the top of the page. "All poets who enter will receive a response concerning their artistry, usually within seven weeks," indicated Mr. Ely.

Possible Publication

Many submitted poems will also be considered for inclusion in one of The International Library of Poetry's forthcoming hardbound anthologies. Previous anthologies published by the organization have included *On the Threshold of a Dream*, *Days of Future's Past*, *Of Diamonds and Rust*, and *Moments More to Go*, among others.

"Our anthologies routinely sell out because they are truly enjoyable reading, and they are also a sought-after sourcebook for poetic talent," added Mr. Ely.

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wise in Williamson's famous "With Folded Hands." Among the DeCamp pieces is an article about the absurdities of the UFO phenomenon in which he clearly and intelligently drew aside the curtain to show the workings of popular obsessions.

We have become used to an artfulness in SF. elegantly turned phrases, powerful aesthetic effects, character studies once seen only in critically acclaimed mainstream work, and the myriad small improvements that come from a growing and stretching art form. It may be that some of these stories fall a bit short on those grounds. But like listening to rock 'n' roll from the 'fifties, once we get past the quaint standards and unembellished rawness, we hear the riffs that became the driving motifs of all the succeeding generations. And they are still pretty damn good in and of themselves.

Science Fiction is a field that is very self-conscious of its youth and its origins and, in many ways, its insularity. It began as a kind of mutual admiration society, a bunch of clubs whose members loved to read it and thought they could write it and who wrote for each other. Never mind what the Outside had to say about it, what "nonmembers" thought of it, what academics disdained in it. It was and is a lot of fun and with the youthful exuberance of a kid with a new toy, the SF fan has never let anything dampen the enthusiasm that comes with a fine piece of writing. Some of the kids are getting on in years now and many are no longer with us. That we have all gotten together to make sure the best are not forgotten is an amazing act of foresight and compassion. There are many anthologies that preserve the work of our founding artists, but there was something that set the Grand Masters apart. That something—style, intelligence, vision, whatever aspect one chooses to designate—is well represented in this anthology.

Awards are wonderful, they ought to be given, but it should always be remembered that it is the work that matters. The best tribute a writer can have is not a trophy on a mantle but the act of a reader opening a book and finding wonder in that writer's work. Open this book and remember the futures.

Mark W. Tiedemann

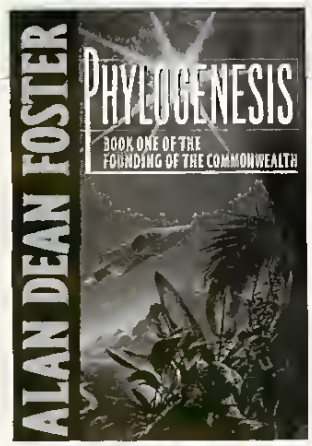
The Extremes, *by Christopher Priest. St. Martin's Press, hardcover, $24.95, 393 pages.*

Besides being one of the most graceful, inventive, and intelligent writers of whom the SF field can proudly boast, British author Christopher Priest is also one of the slyest. Reading an elegantly deceptive Priest novel is like falling through a succession of trap doors, an Alice-down-the-rabbit-hole experience guaranteed to profoundly and pleasantly disorient and delight. Priest's new book, *The Extremes*, is no exception to his 30-year record of pulling the rug out from under his readers, although this latest novel does take a little longer than some of his others to reach its pretzel-logic climax.

Priest's previous novel, *The Prestige* (1995),

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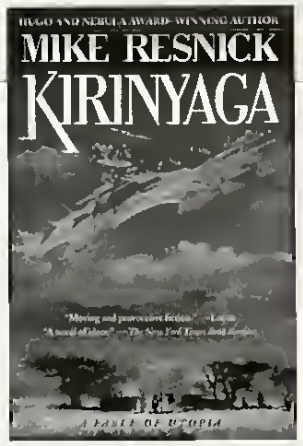




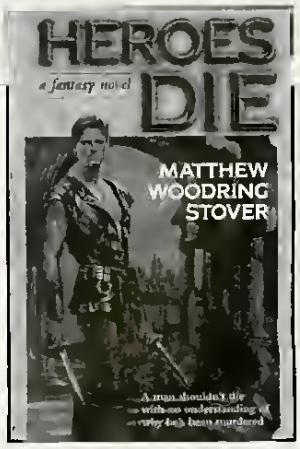
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winner of the World Fantasy Award, was the epitome of his enigmatic yet enthralling story-telling style. Following the rivalry of two Edwardian stage magicians and the generational fallout of their intense bickering, this book placed its numerous conundrums squarely before the reader from almost the first page, and delivered its revelations as a firecracker-string of shocks in the last quarter of the text, culminating in a scene which this reader could well imagine Priest chortling over and carefully planning as his grandest illusion yet.



Counter to the mood and angle of attack exhibited in *The Prestige*, Priest anchors his latest story in grim everyday events, only taking flight quite near the end. Despite opening with a seemingly fantastical episode from the youth of one of the protagonists—an episode that ultimately pays off rather lamely—Priest quickly establishes his story almost in the mode of a Hollywood-style topical thriller. You will find *The Extremes* a hard book to relinquish before its powerful finish.

Employed as an FBI agent in our very near future, middle-aged Teresa Simons has become a grieving widow before we even fully focus on her. (The fantastical incident mentioned earlier is a fragment from Teresa's childhood, in which she appears to slay her own doppelganger.) Teresa's husband Andy, also an FBI agent, has been murdered by a crazed Texas gunman responsible for one of those shockingly common modern murder sprees. Plunged into an emotional whirlpool, Teresa nonetheless retains her investigative acumen. Almost a year after Andy's death, we find her in England, in the small town of Bulverton, where another killer had run amok precisely on the day her husband met his end half a world away. Drawn by the chronological coincidence and by a gut sense that she will find some answers in England to the random brutality of her husband's murder, Teresa is employing her leave from the FBI to conduct an unauthorized private investigation of certain anomalies connected with the Bulverton shootings.

Teresa finds lodging at a down-at-the-heels place called the White Dragon Hotel, run by owner Nick Surtees and his lover, Amy Colwyn. Nick and Ann have both lost loved ones to the Bulverton killer and now exist in a kind of numbed stasis. A large part of the narrative is conveyed from their point of view, and they quickly earn readerly empathy. (In fact, the resolution to Nick and Amy's problems comes so suddenly and is so mercenary that a slight disappointment ensues). Nick and Amy and their sub-story call to mind no other writer so much as Philip K. Dick. Like the confused suburban sufferers in one of Dick's mainstream novels, the pair fumble with good hearts for a way out of their quandary.

This allusiveness to Dick's trademark characters is not accidental, I believe, for the main story involving Teresa soon acquires the unmistakable epistemological weirdness of Dick's SF.

The entrypoint for the strangeness is a different kind of virtual reality, perhaps unique to Priest. "Extreme Experience" is the brand name, and the product justifies its label. The scientists of the GunHo corporation reverse-engineer reality by transcribing sensory, intellectual, and emotional memories from human subjects. After coding up the interactive simulation, they download it onto nanochips, which are then introduced into the experience-hungry customer. (Any such customer has to wear a permanent intake valve on the neck, a wonderfully creepy notion.) Without any clumsy goggles or suits, the customer is immediately plunged into what feels like a complex, sensual alternate reality.

Teresa has used ExEx earlier during her FBI training. But now in Bulverton she begins to patronize a commercial parlor in the hopes of understanding the minds of mass killers. (The ExEx catalog is heavy on sex and violence, naturally.) Gradually addicted to the powerful simulation, she realizes something is wrong only when, in Chapter 27, one of the simulacra begins to conduct an impossibly meaningful conversation with her. From then on, the slippery slope to reality-shifting leads only one way. (At this point, a comparison to Daniel Galouye's minor classic *Simulacron-3* [1964] is definitely in order.)

Once Teresa's world starts to disintegrate, Priest gleefully shreds the gorgeous carpet he's woven, engendering the kind of beautiful disorientations only SF can deliver. But although along the way he's pondered earnestly on the place of violence in our society and created a trio of engaging characters, the novel seems top heavy for its foundation. Dick certainly would have started his version of this book around Chapter 27.

Nonetheless, when Priest finally has Teresa admit that "reality was an assumption that was no longer viable," you will experience a barbed-wire frisson draped in the velvet of Priest's insidiously alluring language.

Paul Di Filippo

***A Calculus of Angels**, by J. Gregory Keyes, Del Rey, trade paperback, $14.00, 406 pages.*

J. Gregory Keyes' Age of Unreason series opened last year with the cleverly conceived *Newton's Cannon*. Through the introduction of alchemical sorcery and mysterious "familiar spirits" that may or may not be angels, Keyes sent 18th-century history spinning

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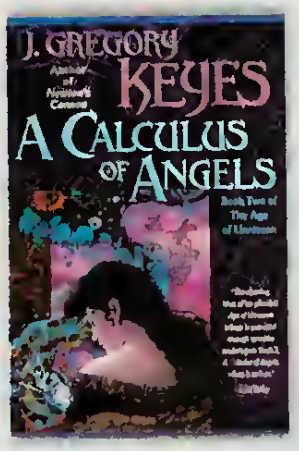
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down an intriguing alternate road. In this setting, skirmishes fought historically with mundane artillery become fantastic battles waged with forces capable of destroying entire countries and, perhaps, the entire world.



Keyes' latest, *A Calculus of Angels*, continues the story of the sorcerer-scientist Newton and Benjamin Franklin, his young and rebellious apprentice. After the destruction of London in the first volume, the two have landed in Prague, besieged seat of the swiftly crumbling Holy Roman Empire. Threatened by the advancing troops of Peter the Great and constant incursions by the Turks, Prague teeters on the brink of chaos. Only the scientific defenses wrought by Newton and Franklin keep the city and her inhabitants safe.

Balancing the Prague subplot are two additional stories, with the second easily the most interesting. In it, a small group of ships under the command of such wildly disparate characters as Cotton Mather and the notorious Edward Teach (alias Blackbeard) set off from the New World colonies to discover why their trading partners in Europe have fallen suddenly silent. The expedition's participants are well drawn, and the interaction of Mather with the Chocktaw shaman Red Shoes provides the set-up for some nicely realized clashes of faith and superstition.

The third major plot thread spins out the saga of French noblewoman Adrienne de Montchevreuil, who learns in *Calculus* that the artificial hand she received in *Newton's Cannon* gives her command of the unseen spirits, which she calls "djinn." After a slow and start, de Montchevreuil's story picks up considerably after about one hundred pages, as Keyes reveals more about the Korai, a secret society of female scholars tied to the biblical figure of Lilith. By maneuvering de Montchevreuil opposition with Franklin and the other central protagonists in the setup for the book's closing conflict, Keyes does a nice job of splitting reader sympathies for the final act. This allows him to cast the conclusion as something more complex than a clichéd struggle between bluntly demarcated forces of Good and Evil.

Keyes sets himself a dauntingly vast stage for *A Calculus of Angels* and populates it with a large number of characters. By the book's third part, the scope of his story seems to overwhelm him a little. A few of the characters, like the wanna-be Janissary Hassim, appear thinly sketched rather than fully rendered. Some scenes take on a rushed quality, this is most noticeable in the conclusion of the Mather-Red Shoes subplot. Finally, Keyes uses such force in drawing together the three main plot threads for the finale that the reader feels manipulated, herded along with the cast toward the inevitable big battle.

The handling of the book's thematic content—the clash of Science versus Magic and the accompanying debate over the proper uses of technological advancements—suffers from no such shortcomings. As befitting a novel populated with enlightened monarchs and philosophers, the discussions about these issues occur as natural extensions of conversations, rather than as the stilted set speeches they could easily become. The overall action nicely supports the thematic content, too, with the plot's direction alternately pushed along by the forces of elitism and the agents of a burgeoning egalitarianism.

The fate of that nascent democratic movement remains alluringly uncertain in Keyes' world. While many of the central characters in Calculus offer pointed criticism of monarchs, the story's representatives of that rare class—Peter the Great and Sweden's Charles XII—acquit themselves much better than might be expected. Despite protestations of brutality and madness, they remain complex and compelling figures, impressive even against the increasingly strange and wondrous backdrop of Keyes' 18th-century Europe.

Although thinkers like Franklin might want to claim that the time of such men is passing, their departure helped along by bourgeois-devised weapons of mass destruction, the premature historical presence of such mighty weapons seems to demand and foster their presence. Future volumes promise Keyes' vision of a colonial democracy twisted by such unnatural forces, which in itself will make them interesting reads. The high quality of the first two volumes of The Age of Unreason suggest the remainder of the series will be much more than that. □

James Lowder

Books To Watch For



New Horizons: Yesterday's Portraits of Tomorrow, edited by August Derleth (Arkham House). Famed Lovecraft editor Derleth died in 1971 before he could complete his planned SF offering. Pick up this lost anthology, finally found again.

A Good Old-Fashioned Future, by Bruce Sterling (Bantam Spectra). Collecting seven recent short stories from the author of *Distraction* and *The Hacker Crackdown*, including a collaborative work with the gonzo Rudy Rucker.

Seek: Meditations on Silicon Valley, by Rudy Rucker (Four Walls Eight Windows). In addition to winning two Philip K. Dick Awards for his envelope-pushing novels, Rucker is also an accomplished essayist. Here he turns his gaze to cyberpunk, cyberspace, nanotechnology, transrealism and other millennial topics.

The Great War With Germany 1890-1914, edited by L. F. Clarke (Liverpool University Press). Today's SF writers aren't the only ones to posit future wars. At the turn of the century stories predicted and played with the concept of a coming Great War. See whether yesterday's tomorrow's got it right.

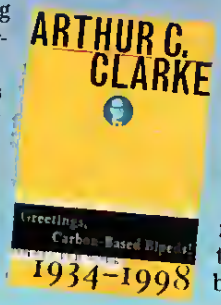
UFO USA: A Traveller's Guide (Hyperion). The Society for the Preservation of Alien Contact Evidence and Geographic Exploration presents every UFO destination in the country—mysterious lights, cattle mutilations, and more.

David Brin's Out of Time: Yanked!, by Nancy Kress (Avon). In this first book of a uniquely-designed series, SF master Brin has built a future in danger, and acclaimed author Kress must figure a way to save it from imminent peril.

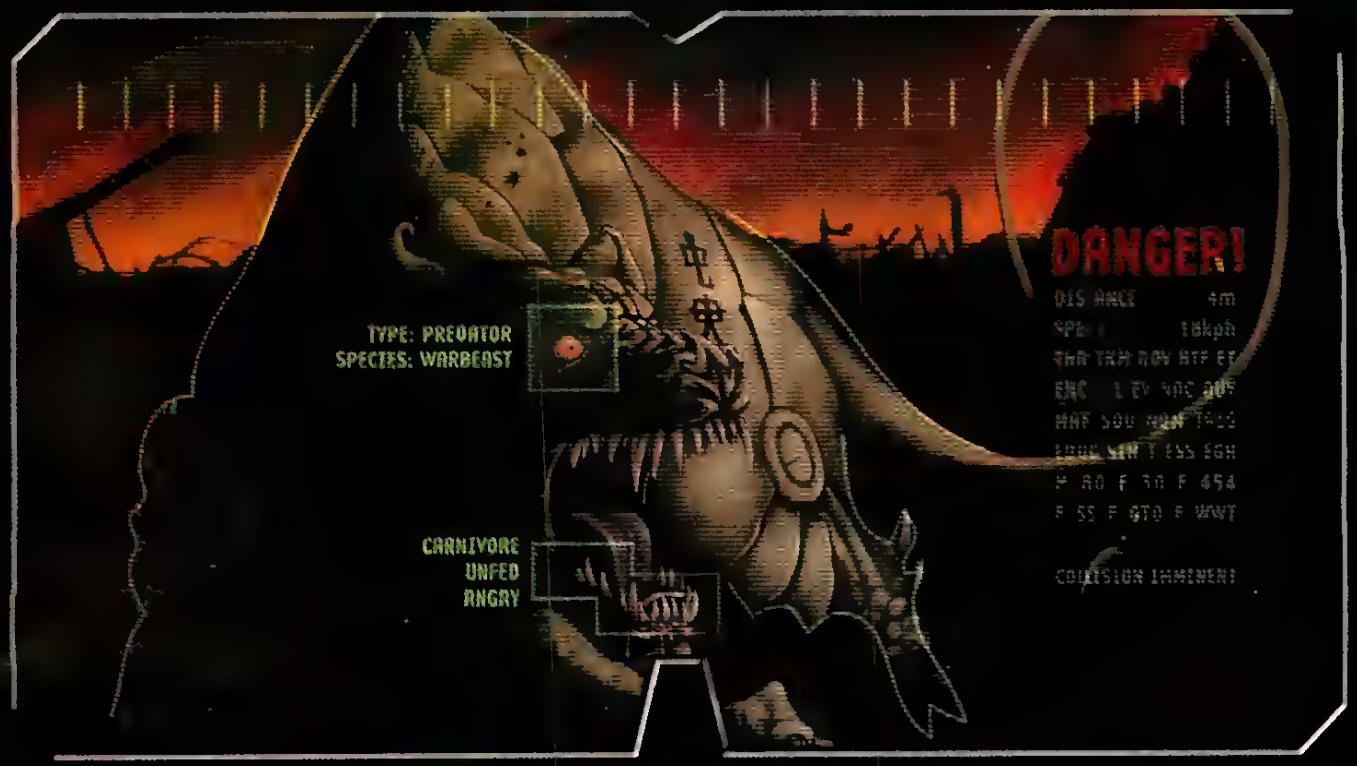
Centaurus: The Best of Australian SF, edited by David Hartwell and Damian Broderick (Tor). There's a whole wide world of SF out there. Shake off your shackles of a USA-centric universe and discover the best SF from down under.

Greetings, Carbon-Based Life Forms: Collected Works 1944-1998, by Arthur C. Clarke (St. Martin's): Clarke dreamed the dreams that taught us tomorrow, so it's worth tuning in for this lifetime accumulation of futuristic essays from one of the Deans of SF. Each piece is accompanied by an historical introduction.

Omega: The Last Days of the World, by Camille Flammarion (University of Nebraska Press). The destruction of Earth in the 25th Century is viewed from the 19th in this classic French novel. With an insightful introduction by Robert Silverberg.



Star Trek: Deep Space Nine: Final Episode, by Diane Carey (Pocket). As you read these words, the third *Trek* incarnation will be vanishing from your TV screen. To help remember, you'll want to relive the finale with this novel of the bittersweet end.



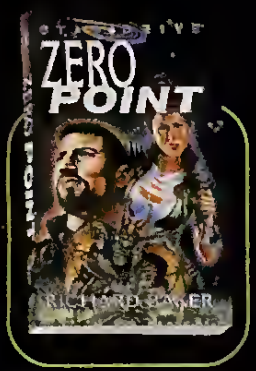
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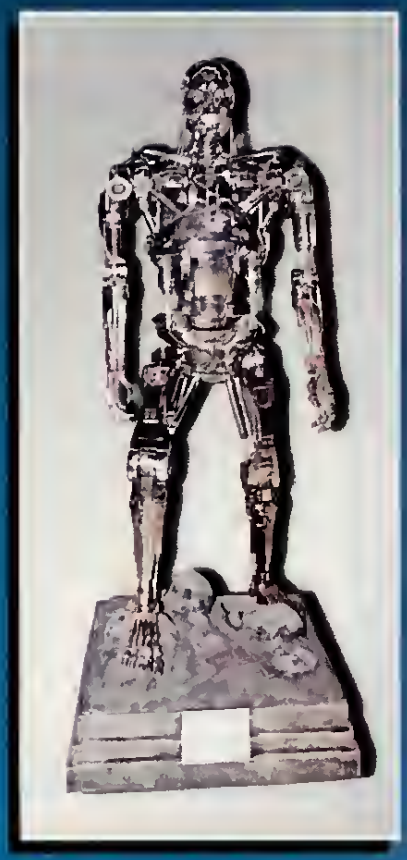
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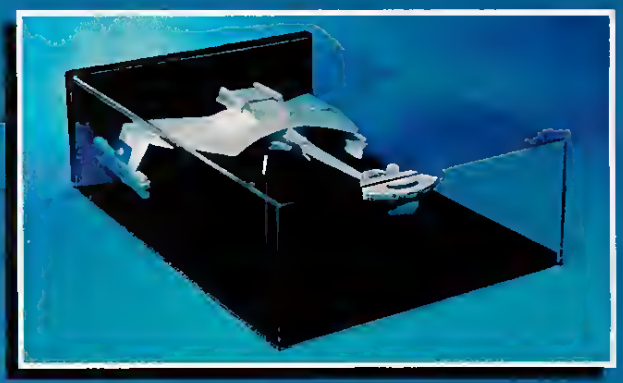
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Since the beginning, Science Fiction has been fascinated with the concept of journeys into outer space. Investigating new worlds. Terraforming and subsequently colonizing those worlds. Living on space stations in some alphanumeric-named quadrant. Meeting alien cultures and civilizations. But what about the miracles and wonders we can experience without even stepping off our planet? In 1863, Jules Verne, one of the founding fathers of Science Fiction, wrote *Voyage au centre de la terre (Voyage to the Centre of the Earth)*, a story about the strange and alien wonders hidden deep beneath Earth's crust. In 1974, composer and keyboardist Rick Wakeman (formerly of the '70s rock band *Yes*) ventured into his own undiscovered country with *Journey to the Centre of the Earth*, an epic live recording that created the concept album. Twelve million copies and two-and-a-half decades later Rick Wakeman is again turning to Verne as his muse. Celebrating the 25th anniversary of *Journey*, Wakeman has gathered together a broad spectrum of talents to record *Return to the Centre of the Earth*, including The London Symphony Orchestra, the English Chamber Choir, Patrick Stewart (*Star Trek: Insurrection*), Justin Hayward (*The Moody Blues*), Bonnie Tyler ("Total Eclipse of the Heart"), Trevor Rabin (*Yes*), Katrina Leskanich ("Walking on Sunshine"), and, Ozzie Ozbourne (*The Ozzman Cometh*). Yes, you read that correctly. Ozzie and Capt. Picard are are working together! Wakeman's 76-minutes long opus has recently arrived in stores courtesy of EMI classics. To track down a copy, visit **www.emiclassics.com** or return to your local music store to listen, and more importantly remember, what the center of the earth may sound like.



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BABE: PIG IN THE CITY: The pink and precious porcine Babe ventures away from his animal farm home to the big city after his owner is injured in a freak well accident. James Cromwell (*Star Trek: Insurrection*) reprises his role as Farmer Hoggett as Mickey Rooney is welcomed to the latest pig flick as a senile old clown. After a short theatrical run, this George Miller (*The Road Warrior*) directed film has found life anew on video. Although criticized for being edgy and dark, *Babe: Pig in the City* has a finale just as uplifting as its predecessor.



THE X-FILES: In order to fight the future, you must remember the past. Fox television network follows Chris Carter's believer and skeptic, a k a Agents Mulder and Scully, as they search for the immutable truth that is out there. New on video are some of *The X-Files'* strongest episodes to date. Each of the three tapes contains two episodes as well as some of Fox and Dana's most trying times in "Herrenvolk," "Home," "Unruhe," "Paper Hearts," "Tunguska," and "Terma."

THE RIGHT STUFF: Ed Harris, Sam Shepard, Scott Glenn, Dennis Quaid, Barbara Hershey, Fred Ward and Jeff Goldblum star in this epic film based on Tom Wolfe's bestselling novel about the early stages of the American space program. In 1983 *The Right Stuff* won Oscars for Best Film Editing, Original Score, Sound and Sound Effects Editing and is now being released from Warner Home Video in a special widescreen format. If you missed *The Right Stuff* in its original run (or during the interim 15 years) then the widescreen is a must-see.



STAR TREK: INSURRECTION: Is any man brave enough to break the prime directive and commit treason in the name of justice? This latest *Trek* incarnation brings us Capt. Picard (Patrick Stewart), Cmdr. Riker (Jonathan Frakes), Data (Brent Spiner), and the rest of the *Enterprise* crew risking life, limb, and love to save the Ba'ku, a small peaceful community, from the Federation's unholy alliance with the skin-stretching Son'a.

DEATH RACE 2000: Undisputed heavyweight of the B-movies, Roger Corman, gives new meaning to the term "aggressive driving" with his campy vision of the future's favorite sport. This sci-fi action film stars Sylvester Stallone and David Carradine as you've never seen them before! Now available on DVD from New Horizons Home Video complete with an interview with Corman on the making of *Death Race 2000* and the full color, 8-page booklet "The History of Roger Corman."

By Melissa J. Perenson

Thanks to George Lucas, you'll never forget where you were on May 19, 1999.



ABOVE: Anakin Skywalker (Jake Lloyd) works on the assembly of his new protocol droid C-3PO. RIGHT: Jar-Jar Binks, a Gungan whose curiosity always gets him into trouble, walks through an open-air market in Mos Espa on Tatooine.

WHERE WERE YOU ON MAY 19, 1999? AN innocuous enough question to the uninitiated, but after the opening of *Star Wars: Episode I—The Phantom Menace*, that query will assume a new meaning. For an entire new generation, the defining question won't be where one was when man landed on the Moon, but rather, "What were you doing when *Star Wars: Episode I—The Phantom Menace* opened in theaters nationwide?"

Star Wars has clearly assumed the mantle of modern-day mythos. Which is by no coincidence, considering the seeds for achieving that status were built into the series of classic films from the outset. "The mythic aspects are there," observes veteran Science Fiction writer Timothy Zahn, who single-handedly resurrected interest in the Trilogy back in 1991, when Bantam Books released the first installment of Zahn's *New York Times* Bestseller, *Heir to the Empire*. "With the *Star Wars* saga, and the people in it, you hear resonance in the human psyche. Just the chemistry that Lucas was able to create between the major characters and the whole good versus evil thing which has been the basis of story-telling since human beings started telling stories. It's all there. It's all just very accessible to people, very resonant. It's a saga, a legend, a myth—a heroic epic."

Creator George Lucas deliberately drew on mythology when crafting his stories. "I was interested in creating a new kind of myth and using space to do it, because that's the new frontier," explains Lucas. "In the *Star Wars* series, Luke is the central hero, and he goes on the classic hero's journey. In the beginning, his first thoughts are of himself. At the end of it, he is risking his life and getting involved in a much larger cause. That's where he ultimately finds his satisfaction."

Adds author and former Smithsonian curator Mary Henderson, who oversaw the *Star Wars* exhibit which ran at the Smithsonian in 1997 and 1998 and wrote the exhibit's companion book, *Star Wars: The Magic of the Myth*, "Mythology is a metaphor for the experience of life. People need this spiritual connection with their lives, so mythology is



something you have to have. And if society does not provide it, in the way that you need it, then it will be created. And that is what I think happened with *Star*

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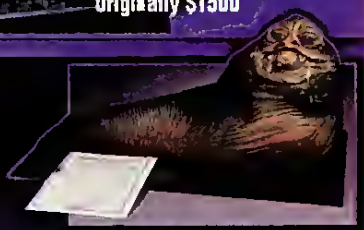
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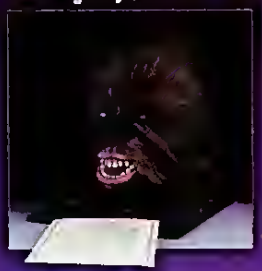
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ABOVE: Jedi Master Qui-Gon Jinn (Liam Neeson) engages in a ferocious lightsaber duel with Sith Lord Darth Maul (Ray Park) in the Tatooine desert. RIGHT: Anakin Skywalker's Podracer jumps ahead of the one operated by his arch-nemesis Sebulba.



Wars. George Lucas set out to create a myth for the modern day, and his genius was that he succeeded in doing something that gives people their mythology in a way that they can really absorb it."

Upon viewing the Trilogy of *Star Wars* films with a critical eye, recalls Henderson, "it seemed obvious to me that there was some mythic content there that I had not paid attention to before. I found that the basic sub-structure of the plot of *Star Wars* follows the hero's journey pattern, which has formed many myths throughout time. The hero's journey consists of a certain number of steps, and they are usually divided up into three major parts. The first is the departure, where the hero has to leave his or her known world behind, embark on the adventure and acquire the tools and things that are needed. The second part is the initiation, where the hero undergoes all kinds of trials and ordeals that lead to new levels of understanding. And then third is the return where the hero brings back the benefit to his or her society or civilization."

Examples of the hero's journey motif are scattered throughout the Trilogy, starting in the initial installment of *Star Wars*. "In the case of Luke, because he is young and untried and untested, [the journey] really starts at the very beginning of *Star Wars*, when he receives a call to adventure in the form of the message carried by R2-D2. He leaves home, has to pass

various thresholds and guardians, particularly in the form of the Sand People, and he meets a wise and helpful guy in the form of Obi-Wan Kenobi. He is given a magic talisman, which is his father's light saber. And he acquires hero partners in the form of Han Solo and Chewbacca."

That *Star Wars* itself has become a part of our popular mythology doesn't surprise Henderson, who considers the era in which the films first came out as being a time of "a kind of spiritual wasteland. The culture will create [mythology] when it is needed. And that's what happened. [George Lucas] wanted to create a story that was deeply meaningful and romantic. Romantic in the sense of the art term as it applies to literature and art and the humanities' connection with nature. That really fulfilled a need that people had."

While Lucas is known to draw on myth for inspiration, that doesn't mean he simply transplants existing lore into his own universe. "George Lucas is very savvy, and very knowledgeable of mythic patterns. He doesn't use specific myths to make his story, he uses patterns that are universal to myth," says Henderson. "That is the way he has set up the Trilogy of *Star Wars: A New Hope*, and that is what leads me to believe without knowing anything about [*Episode I*] that this preceding Trilogy will deal with the way these forces of destiny were set in motion."



LEFT: Queen Amidala (Natalie Portman) must face down a blockade and then an invasion of her homeworld Naboo.

From what little Henderson has heard about *Episode I: The Phantom Menace*, Lucas is once again dipping into mythology. "I really don't know too much about the new *Star Wars* movie," she admits, "but I was reading an article about the new movies, and read about a character called Queen Amidala. That immediately sparked my interest because that name is obviously taken from Amida, who is a deity of the Jodo sect of Japanese Buddhism. She's a Buddha of infinite light, and rules the pure land; her role is to bring about a change in moral character, so she is associated with compassion and kindness and salvation. I am willing to bet money that this character [in the film] will be someone that is compassionate and kind."

Of course, Henderson isn't the only one postulating about what *Episode I* will contain. While spoilers are to be found if one searches the Internet, official information on the film has been tightly con-

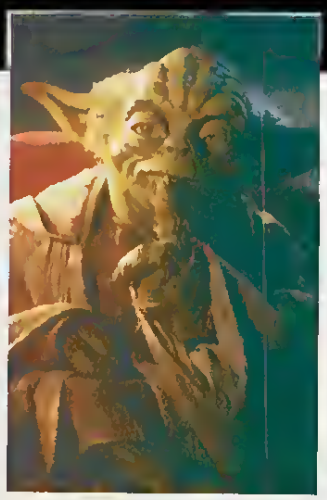




ABOVE: Jedi Obi-Wan Kenobi (Ewan McGregor) and Qui-Gon Jinn (Liam Neeson) prepare to wipe out a squadron of battle droids aboard a Trade Federation battleship. RIGHT: Jedi Master Yoda (puppeteered and voiced by Frank Oz) sits at the helm of the Jedi Council.

trolled, offered in measured doses to an inquisitive and insatiable public that yearns to know more. The shoot was shrouded in secrecy, as well; security was tight while the filming was taking place at Leavesden Studios in England and on location in Tunisia and Italy in 1997, and post-production has been handled behind the guarded gates of Lucasfilm's Skywalker Ranch headquarters just north of San Francisco.

What is known about *Episode I* is that the story backtracks a generation to the early beginnings of the *Star Wars* saga, tracing the path that led Obi-Wan Kenobi and Darth Vader (nee Anakin Skywalker) to their destinies as seen in the original Trilogy (episodes IV, V, and VI).



Political turmoil abounds in the galaxy when the Naboo system, ruled by the young and headstrong Queen Amidala (Natalie Portman) is threatened by outside sources. The Jedi Council, whose ranks include Jedi Masters Yoda (Frank Oz) and Mace Windu (Samuel L. Jackson), still holds power, waxing philosophic from atop the Jedi Temple on Coruscant. But the hegemony of the reigning body is threatened by the Sith Lords, led by Darth Maul (Ray Parks). In the midst of all this, Jedi Master Qui-Gon Jinn (Liam Neeson) must teach his willful and determined student, Obi-Wan Kenobi (Ewan McGregor), the ways of the Jedi, even while the galaxy is

Continued on page 86

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By Geoffrey A. Landis, Brett Davis, and Robert J. Sawyer

As we move into the future, we learn more about the dinosaurs of the distant past.



ABOVE: In "Twilight Vigil," Artist Wayne Barlowe portrays the Velociraptor as a bird-like predator surveying its territory at dusk.

DINOSAURS! FROM RAY BRADBURY TO *Jurassic Park*, Science Fiction readers have loved these antediluvian behemoths, the dragons from Earth's past. But they're not just fiction—dinosaurs were real, and were the absolute rulers of the Earth for nearly two hundred million years—far longer than puny humans have been around. What were they really like? Until we invent time machines to see these magnificent monsters up close, all we know about dinosaurs comes from fossils—buried bones, teeth, and coprolites. But what a story they tell! As we have learned from paleontology, dinosaurs were no lumbering pea-brained dodos; they were active, elegant, powerful, and probably warm-blooded creatures superbly adapted to their ecological niche.

To talk to us about what we have learned about these extinct creatures, *Science Fiction Age* turned to three Science Fiction writers with a fascination for dinosaurs.

Robert J. Sawyer's novel *End of an Era* features time-traveling paleontologists, and his Quintaglio trilogy (*Far-Seer*, *Fossil Hunter*, and *Foreigner*) tells us of a world of intelligent dinosaurs. His most recent novel is *Flashforward*, from Tor (June 1999). He is currently writing a novel about an extraterrestrial paleontologist visiting Earth. Check out Rob's Web site at http://www.sfwriter.com

Brett Davis has written two dinosaur-related novels, *Bone Wars* and *Two Tiny Claws* (both published by Baen in 1998). Both of these books combine real-life paleontologists with fictional alien bone-diggers who are after the same fossils as the heroes, and take place in the Old West. His Web site, still under construction, is at www.webdevs.com/brettdavis/

Science Forum regular Geoffrey Landis has featured dinosaurs in several of his SF stories, including "Dinosaurs" and "Embracing the Alien." As this issue goes to press, he will be biting his nails over the Nebula awards, where two of his stories—including "Ecopoiesis" (*SF Age* May 1997)—are finalists. Check out his Web site at http://www.sff.net/people/geoffrey.landis

LANDIS: The dinosaurs of our childhoods were huge, lumbering, cold-blooded beasts, unable to compete with our lithe and warm-blooded ancestors. But today we have a much different view of dinosaurs. How has the way we see dinosaurs changed, in your opinion?

SAWYER: Dinosaurs used to be the very symbol of obsolescence and failure; I think we now see them as extremely successful creatures, that would still be on top if it weren't for an accident of fate.

DAVIS: I agree. It's awesome how long they were around, and how many ecological niches they filled. We think of them now like we think of birds; they're colorful, they're everywhere.

SAWYER: I do like the quip, though, that the dinosaurs died out because they didn't have a space program. If we were faced with an incoming asteroid today, there's not much we could do about it. But within a hundred years—a tiny amount of time, geologically speaking—we'll be able to deal with that sort of problem. So, in the end, intelligence *is* of great survival value.

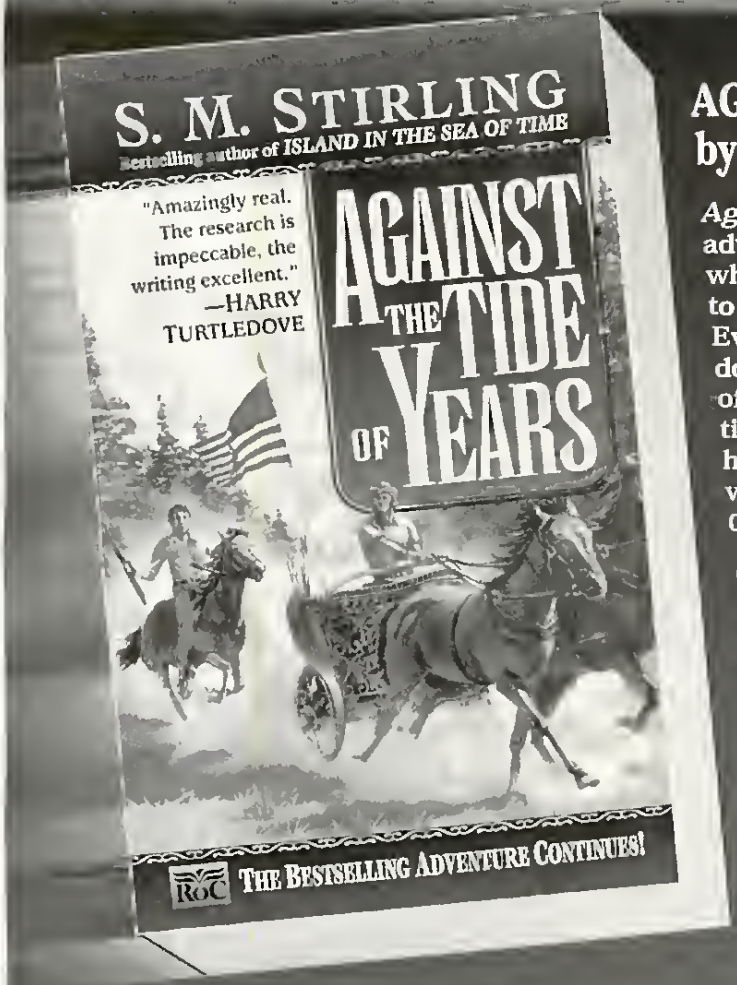
DAVIS: The Pentagon guys would replace "space program" with "missile-defense system."

SAWYER: Well, the *other* alternatives, of course, would have been for the dinosaurs to destroy an incoming asteroid or comet, or migrate to another world. Spaceships let you do either. It is ironic, though, that missile-defense systems are seen as the savior, given that Sagan and others—

LANDIS: Walter and Luis Alvarez, of course, mostly.

SAWYER:—popularized the asteroid-impact hypothesis based on the nuclear-winter scenario. In other words, we've gone from the death of the dinosaurs being the

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great argument *against* nuclear weapons to being the great argument in favor of them.

DAVIS: That's a good point.

LANDIS: I went to hear Robert Bakker lecture last week. He certainly gave a view of dinosaurs as more dynamic than the old view had it—but he still doesn't believe in the asteroid-impact theory of extinction.

DAVIS: As for the asteroid theory, wasn't a likely candidate the crater found in Mexico?

SAWYER: Not only the crater, Brett, but now a piece of the actual bolide, apparently. It was reported a couple of weeks ago.

DAVIS: That's right!

SAWYER: But, actually, I don't like the dis-asteroid-impact hypothesis myself. It doesn't explain why dinosaurs—big, robust creatures capable of migrating—died out, and turtles—small, relatively immobile creatures notorious for their sensitivity to climate change—did not.

LANDIS: Seems to me that with the crater in Chicxulub they have found the smoking gun. I think Bakker is wrong.

DAVIS: Bakker's theories have been kicked around quite a bit lately.

SAWYER: No one doubts that there was an impact, Geoff. But whether the impact was the dinosaur killer—that is still debated.

DAVIS: There have been several mass extinctions, even before the asteroid impact, it's true.

SAWYER: There are a bunch of other Mesozoic craters that have no biological effects associated with them.

LANDIS: Seems unlikely to me that the impact and the extinction could possibly be unrelated—about as unlikely as a person just happening to die of a stroke at the exact instant that a bullet is shot at him.

SAWYER: Ah, but that's the question! Did they die out in a flash? Or did it take a lot longer, and was it under way even before the asteroid impact? The fossil record just doesn't have the kind of resolution required. It's *not* a big coincidence to say, hey, someone took a shot at me when I was 20 and I died of a stroke when I was 80—and that's much finer temporal resolution than anything we've got from the sediments.

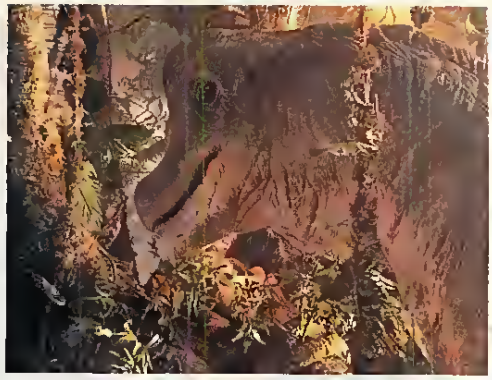
LANDIS: The fossil record of microflora certainly *does* have the resolution, and shows the mass extinction precisely at the impact.

DAVIS: I think this debate is one reason dinosaurs are so fascinating. Can what happened to them happen to us?

SAWYER: Ah, yes, there was a microflora effect, no doubt. But we were talking about the dinosaur killer—

LANDIS: The argument has to be, oh, yes, that was a mass extinction, but it was an utterly unrelated one. Not very likely. The dinosaurs go for millions of years perfectly evolved for their niche, then they die at the same time as a mass extinction clearly caused by an impact ... but it's a coincidence?

SAWYER: The asteroid could be the culprit ... but there are other, more mainstream paleontologists, besides Bakker, who don't buy it.



ABOVE. Jurassic Park *gave us the best film dinosaurs of the modern movie age.*

William Serjeant, a microfossil expert, for instance. The thing that needs to be explained is *why* the dinosaurs—and not other life forms more sensitive to environmental change—died out.

LANDIS: Well, a large number of completely unrelated species, from the marine reptiles to the ammonites to corals to diatoms, did die all at the same time. That's hard to explain without a global catastrophe such as an impact.

SAWYER: Also, there are lots of areas we have no fossils from—hilly regions, for instance. Fossilization is very selective; it is conceivable that dinosaurs continued on for a length of time into the Cenozoic.

DAVIS: Robert, what are the major life forms that *didn't* die out that have you suspicious? Turtles, alligators, what else?

SAWYER: Frogs, mammals, birds. Our ancestors.

DAVIS: I would think mammals would do all right with climate change.

SAWYER: Well, in the asteroid-impact scenario, it's not just climate change; it's months of no sunlight, and a breaking down of the food chain, starting with the plants. Sure, a coat of fur helps you when it gets cold, but a guy's gotta eat.

LANDIS: True, but if you're tiny, it makes it a whole lot easier to scavenge when the plants die. It was the tiny vertebrates that survived.

DAVIS: Weren't the birds around that time not very birdlike? More mammalish?

SAWYER: Flighted birds developed in the Jurassic. There were diving birds—Hesperornis is one—in the Cretaceous. Lots of niches were dominated by pterosaurs, but we did see a good avian diversity.

LANDIS: Why do dinosaurs fascinate people so much?

DAVIS: I think partly because we are mammals and they are reptilian. Seriously!

LANDIS: An ancient fear?

DAVIS: Yes, something primal.

SAWYER: That's a good point, Brett. I think it also has to do with dinosaurs having been *real.* A sophisticated kid, and most adults, have no interest in dragons or other mythical beasts, but the idea that these

incredible, almost alien life forms, actually did exist, is compelling. The truth is in there (in the rocks).

DAVIS: I agree with that, too. They are the real-life dragons. Why do you think kids like them so much?

SAWYER: And of course there's the fascination with things that are huge, and the humbling quality that they died out

DAVIS: My nephew is six and can spell all the names.

SAWYER: Kids love dinosaur names—they are the great equalizer: They get to watch their parents struggling to pronounce big words, just as the kids themselves have to!

LANDIS: You've both written books about dinosaurs. In your work, do you incorporate the new view of dinosaurs as hot-blooded, social, and colorful?

SAWYER: Absolutely. The new dinosaurs are much more fun to write about than the old ones ever were.

DAVIS: Well, I cheated. I set my two dinosaur books in the Old West, before many of the new things were known. I could avoid that almost completely.

LANDIS: Yes, the old Victorian bone hunters.

DAVIS: I did have my dinosaurs standing up, not tail-dragging, though.

SAWYER: Also, the "new" dinosaurs aren't all that new—it was in 1977 that Robert Bakker's "Dinosaur Renaissance" article appeared in *Scientific American*, after all.

LANDIS: What have you found to be the most interesting new discovery about dinosaurs?

SAWYER: It's got to be the feathered dinosaurs from China, found last year.

DAVIS: I'd say the whole cladistics connection to birds, including the Chinese finds. I look at crows out my window and think, there's a dinosaur.

SAWYER: Kentucky Fried Dinosaur! McDinosaur sandwich!

DAVIS: The whole argument about whether T-rex was a scavenger is fun, too. A buzzard!

LANDIS: I'm impressed by some of the discoveries of the social life of dinosaurs, myself. The Maiasaur nests, and so forth.

SAWYER: The social-life stuff is very interesting, particularly because it is so based on deduction—looking for clues, and trying to interpret fossils. I'm really amazed at what they're able to infer from the fossil record.

DAVIS: Did you see the story in *Discover* about apatosaurs snapping their tails to attract mates? That was pretty amazing, too.

SAWYER: Hey, I snap my tail all the time to do the same thing ...

LANDIS: Yes! Bakker says that the whip tail was almost certainly a weapon. Brontosaur nunchuks!

SAWYER: Seriously, yes, I think the tail is fascinating. As Geoff says; the weapon concept is great. A sauropod tail could actually be snapped fast enough to break the sound barrier—amazing.

LANDIS: Must have been pretty impressive.

DAVIS: Yes, I try to imagine what the sonic booms must have sounded like. The sauropods could communicate over vast distances with them, like whales do today with their underwater singing. What do you think about Dr. Dale Russell and his evolved dinosaur-man?

SAWYER: I really like Dale, but I think he went too far trying to make his point. His dinosauroid has a navel, for instance, implying live birth, and has completely erect posture, when dinosaurs had using tails as counterbalance down to an art. If I may cough politely, I'd say that the Quintaglios in my own novels are more realistic, intelligent dinosaurs.

DAVIS: I'd say you're right, but it was good enough for me. I pretty much stole my lizard aliens from him outright.

LANDIS: Have you ever been on a dig?

SAWYER: I haven't, no. Phil Currie at the Royal Tyrrell Museum of Paleontology is a friend of mine, and keeps encouraging me to come out one summer, but I'm so busy. I've done a lot of invertebrate collecting, though, both on my own, and with field trips from Toronto's Royal Ontario Museum.

DAVIS: I haven't gone on one, either, but I'd like to.

SAWYER: Y'know, I wanted to be a professional paleontologist, but ending up as a writer has made me lazy, I guess. All that manual labor!

DAVIS: I just don't have the required attention span!

SAWYER: I don't have the eye—when I am fossil hunting, it galls me that people along on the trips who know nothing about paleontology can spot great fossils in matrix, and I just miss them. It's a real gift.

DAVIS: They said Barnum Brown could smell the fossils.

SAWYER: Me, I can only smell the coprolites.

DAVIS: That's still a pretty good nose!



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WHERE IMAGINATION KNOWS NO BOUNDS

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The aliens believe that we have the answers they seek. Unfortunately, it seems that all they find are further questions.

BY ELIOT FINTUSHEL

ILLUSTRATION BY PATRICK ARRASMITH

IN THE HOLD, BIG AS A SMALL ISLAND, WE KEEP A MAN AND A WOMAN WHO still remember the Epoch of Divorce, the time before the Gender Wars. We used to have more, but we lost them before we understood how to prolong their lives through subtle alterations of their body chemistry. Biologically, our man and woman will never be older than 60 or so, as they are now.

I still question them periodically. Mostly, they repeat the old tales, the old complaints, but from time to time, even now, there are surprising revelations, or, at least, anecdotes that we have not yet heard, we from afar. All of it interests us.

We call the man what he asks to be called, "Fred." The woman we call "Ethel." It used to be a joke between them—we could tell that. It gave them a feeling of superiority over us, and that seemed healthful for them, so we permitted it. Now they have forgotten that they ever had other names than Fred and Ethel.

"There was nothing like sex," Fred said to me once. "Nothing could beat it. Hell, nothing could match it! Look at your Taj Mahal. Guy built it because of that—for his lady friend."



"Look at the Parthenon," Ethel snorted.

"Huh?"

"Dedicated to the Virgin Goddess—that's what it means, 'Parthenon.' 'Parthenon' means *virgin*."

Fred made a face. "Never mind that. What about your Trojan Wars? That was all about sex, you know, because Paris had the hots for Helen of Troy."

"What about the Parthenon?"

"Oh, stop it! That's nothing. I could mention your chivalry and your courtly love and all the Knights of the Round Table. I could mention your *Divine Comedy*, all three books of it. That whole business was for Dante's Beatrice, you know."

"He never had sex with her."

"He wanted to, is the point." Fred moved to within inches of her. His face reddened. I watched them with very great interest.

"What about the Parthenon?" she insisted.

Fred shrugged in my direction. "Y'see what we had to put up with?"

IN THE HOLD, FRED AND ETHEL HAVE ALL THEY WANT. They used to wear clothes and eat sit-down meals and so on, but they have become more at ease in their surroundings now. They trust more. They graze on fruits and roots and berries at their leisure. They understand that nothing here will harm them, unless it is each other—and they are past that concern as well: Their passions have dulled somewhat, their eyes are not so bright as formerly. It is easy for us to visit them whenever we like, in order to continue the debriefing, an endless and endlessly fascinating project, and to gather insights that illumine current developments outside.

"The thing about women," Fred told me once, "is that they're never satisfied. I don't blame them, understand—it's how God made them. It's what they're all about. Your entire woman, understand, is built around a *hole*! Take that on whatever level you like. It's the gospel truth."

Ethel seemed not quite satisfied with this summary. "Let's not talk about what *men* are built around, shall we?"

Fred blushed. He turned to me. He always did so without fear. In physical appearance and in mental constitution we are not greatly dissimilar, we from afar, from Earthly human beings.

Fred addressed me: "Y'see what I mean?"

I nodded. If Ethel had made one of her abrasive remarks, I would have nodded the same way. It is our custom to respond thus to all their appeals and suggestions: to nod. We must retain our impartiality. I believe they have come to understand this. Neither Fred nor Ethel presses us as they once did. Neither entertains any longer the hope of allying with us against the other.

"WE ARE DONE *HERE. THEY ARE ENDING LIKE ALL* the rest."

"A while longer!" I pleaded. "There is something about them ..."

"You speak like a female! There is nothing about them. The Centauri system had more intelligent ones. The ones near Betelgeuse were more compassionate. There is no solution in the offing here. Why watch the whole dreary decline all over again? We should move on."

"Give it a dozen generations more."

"Oh, all right—just to get you off our backs. But next review—no arguments! If there is no sign of resolution across the sex divide, we move on, period!"

THEY CAME TO ME ONCE, BOTH OF THEM TOGETHER, to ask me a question that seemed to weigh on them. Ethel was the spokesperson, but she was obviously posing the question for them both. With some passion, she asked me: "What is the difference between men and women, as you see it? What is it?"

I nodded, and I answered the best way I knew how: "Women produce large immobile gametes. Men produce small mobile ones."

They looked at each other, then left me without speaking further. It was a long time before either of them spoke to me again.

Finally, Fred addressed me one afternoon while he was vacantly chewing on a handful of arborvitae. "You just don't get it, do you?"

Obviously not. But that is why we are here, we from afar. That is why we had to come so far to begin with. Oh, that we had understood from the beginning! Oh, that we had avoided the unnameable vast sufferings of interstellar space travel by knowing this one needful thing!

What is the difference between men and women? What do they want, men and women? Dear God, what do they want?

"Of course you wouldn't understand," Fred told me, "you from afar! You're all alike. You have no sexes."

"Oh, no, you're mistaken!" For a moment, I forgot myself. I neglected to nod. I neglected to think before speaking. "We are all of one sex here, we from afar, it is true, but only because we permitted none of the other sex to come along. They are all at home—if they live."

Fred and Ethel stared at me. I jotted something on my clipboard. I busied myself looking at this and that and taking notes, uselessly. Even as I withdrew, my back to them, I felt the heat of their regard.

It is lucky that I did not say more. I could have told them how lonely I always am. I could have told them how broken and empty I feel, as if a half of me had been torn away and the rest never healed. My whole skin is a gaping wound, aching for completion, but my other half is light-years away, and the cost would be too high anyway—we have our own "Gender Wars"—unless these of Earth should find a way that we from afar might emulate.

So far, it seems clear, they are as much in the dark as we.

WE ARE ENGINEERS WHO SEEK IN NATURE Herself the answer to a design problem. We wander far. We study widely. The design problem is in ourselves. We seek beings whom Nature has designed like ourselves—male and female made She us—but in whom She may have provided a way out.

We fail, we fail, we fail!

IN THE MAIN, FRED AND ETHEL ARE PACIFIC. PERHAPS it would be otherwise if they were aware that human history is not, as we have always given them to understand, at an end. We conceal from them the life outside the ship. It is a hell where men and women touch only in desperation and in mortal fear of one another. They sneak away from their tribes and come upon one another in

My whole skin is a gaping completion, but my other

the forest. Then it is like a mauling or like a collision or like a robbery, each stealing something from the other, then fleeing. Sometimes there is trouble between them and one dies, sometimes the man, sometimes the woman.

Still, if Fred and Ethel were aware of this life, they might struggle to get out. They might become dissatisfied with the hold and want to rejoin their worldfellows, however wretched. Humans are like that—as are we from afar.

"Tell us again, Sad Eyes,"—that is what Fred calls me—"tell us how life on Earth ended. Ethel here says it was the bomb, but as I recall, just before you fellows saved us few, everybody was being neutered by pollution. I say they just died off. Which of us is right?"

I nodded. "It was both ways. Most died in the explosions or in the long winter after, but there were still many survivors. They were all barren."

"You see?" said Ethel.

"What do you mean?" said Fred. "I was right all along!"

In fact, there were no bombings, and we ended the pollution soon after we had sequestered our subjects. Oh, we are powerful, powerful! We can do so many things! But if we could do them all, we would not be on Earth these many ages, waiting, watching, praying for an answer. Neither bombs nor pollution brought about the unfolding debacle outside. It was the Gender Wars.

We are now observing their denouement.

"EVERY PLACE WE *VISIT IS THE SAME. We have found nothing more powerful and destructive than the divide of sex. Bombs and pollution are nothing to that." My shipmate's frustration caused him to raise his head almost to my level, but one sharp look reminded him of his place, and he gazed at my feet again.*

"Something is changing," I said. "Something is different—I feel it."

"He feels *it!" my current superior scoffed. He belittled me by addressing my shipmate and speaking of me rather than to me. "The review is imminent. Then we shall see. We shall see, do you understand, as males see! We shall not have to utter such feminine incoherencies as 'I feel it!'"*

SOMETIMES, WHEN THE NIGHT WATCH of the hold falls to me, I hear Fred and Ethel talk to each other in the low voices they use for intimacy. They must realize by now that we are always watching and listening, and they must understand that the volume of their speech makes no difference at all—if a bird should fall, we would know it—but their old conditioning constrains them to act a certain way, regardless. They becloud themselves. They forget what is possible and what is not: perhaps it is a survival mechanism. This frivolous bent may have caused a range of variability in the behavior of their species, as in ours, that somewhat enhanced their evolutionary fitness in times of unpredictable environmental change—the very thing that makes sexual reproduction preferable to asexual, in fact, in similar circumstances.

Last night, moonlit, Fred sat by Ethel at the riverbank. She allowed him to sit there. Sometimes they copulate or fight over not copulating, but, for them, the old-timers, it is never as intense as it is on the outside. They rankle but never become violent. This night neither felt amorous.

Fred whispered, "Don't look at me. Keep looking at the water. Beautiful, isn't it, the Moon in the water? Ethel, let's get out of here."

"Out?" Her eyes moved to look at him sideways, but she never turned her head.

"Sad Eyes and the other dorks always come from the direction of the mountain… "

"Of course! Of course! Don't you ever get tired of saying so?"

"Shush, dammit! Just keep looking at the water. I say it's time to climb the mountain and see what's up there. I'm tired to death of being stuck here all alone with you."

"It's no picnic for me either, you better believe, but the mountain—that's just crazy! Number one, we're too old to get halfway up it without keeling over and sprouting daisies. Number two, this is hell all right, I mean, with you here and all, but up there, well, it could be a worse hell."

"Right." He stood up and started to walk.

"Where you going all of a sudden? Is it my breath, or what?"

"I'm going for a walk. What do you care?"

She watched him for a moment. She looked troubled. Her lip quivered. Then she sprang up with an unaccustomed agility, I thought. "Wait up! I'm coming too!"

Their "mountain" is a large mound that camouflages our observation chamber. From the chamber there is access to both the hold in which Fred and Ethel live and to the outside world, Earth itself, where the scattered descendants of the Gender Warriors continue to exist in their men's tribes and their women's tribes.

As I said, it was my watch. I was alone in there. In the entire chamber of perhaps a million cubic meters, there was only myself with tiers and tiers of machines. Most were environmental-control mechanisms; the rest comprised recording and logging equipment, also various arrays for the usual experiments, along with repair tools and modules, untouched for many human generations now, for putting together new experiments.

I misted the entryway as Fred approached it, just as we always did, we from afar, on entering or leaving the experimental area. That way we seemed to emerge from an indefinite place in a fog rather than from a distinct doorway that would demand investigation. Fred found himself in a sudden fog; I opened the door before him, and he entered the observation chamber without realizing it. I was an arm's length away, but he could not see me for the mist.

Ethel came in. She bumped into him from behind. Their confusion and preoccupation with each other made it easy to coax them through the mist to the opposite door, and through the door into the world outside. Thus, after a lapse of perhaps a century, Fred and Ethel found themselves on Earth.

"FIRST YOU FRIVOLOUSLY *IMPEDED our departure.* Now you *have taken it upon yourself to contaminate the entire experiment by allowing the control humans, the old ones, out onto the Earth among the new generation. If there was ever anything to learn in this pedestrian world, you have eliminated the possibility of our learning it."*

"Wait! There is something different here. I acted in all our interest. You'll see…!"

"No. You'll *see!" My current superior misted the doorway and had my shipmates expel me onto the Earth.*

I turned. I shouted for them to open up. I pounded at the door until the

wound, aching for half is light-years away.

metal grew too hot to touch and the noise of the lift engines hurt my ears. I ran then. The ship lifted into the sky. I hid behind a boulder, but I felt my face, shoulders, and hands burn as the slipstream of the rising ship pulled the breath from my lungs.

I COOLED MY BURNED SKIN IN THE RIVER. WOMEN darted in and out of the trees, venturing nearer until at last seven or eight of them were gathered around me, and 20 or 30 more spread out between myself and the trees, inching nearer but ready to run. They need not have feared me, and by degrees they discovered that; the atmosphere of Earth is not lethal for us from afar, but we do not do well in it. I was like an old animal, moving heavily and slowly, with rasping breath.

"Are you a man? You don't look like a man."

"Doesn't look like a woman, either!"

"He's from the ship!"

"You mean, *she*!"

I said, "I come from afar. We have our two sexes as you do, and I represent one of them. Call me a man, if you like. I have small mobile gametes."

One came close enough to examine my gonads. The others tittered at first, but when she touched me they fell silent. Then she touched me again. She stroked me tentatively, staring at me with frightening intensity. Then she grasped my pelvis between her hands, lowered me with her to the ground, and took me inside her.

What of the revulsion I felt at coupling with something so strange to me as an Earth female? What of it? Was it anything more than a premonitory twitch installed by evolution to discourage the waste of sperm with the wrong species? Why should I credit such an emotion, especially when the rest of me was happy? I had not embraced another for so long, so long! If she didn't please my evolved eye, then shut it, thought I, and dream! She took me. Then the others took their turns, pleased that I was not so quickly depleted as an Earthman.

I heard Fred and Ethel shout from the rocket mountain, "No! No! Stop that! You can't do that! Sad Eyes isn't a human being, for God's sake, you crazy beasts!" The women dragged me into the woods.

No one in the enclave that kept me ever risked contact with the men again. When men came skulking about, the women repelled them fiercely.

FRED VISITED ME IN THE NIGHT. HE CREPT to the hut where the women had bound me by the ankle to a post. "Psst! Sad Eyes, do you want me to cut you loose?"

"No."

Trees soughed in the night breeze; cricket songs stained the dark. Fred sat just outside the hut and calmed his ragged breath. He spoke to me through the thatch without ever entering. I could see the wall press in where he sagged against it.

"Ha ha! I guess I wouldn't mind trading places with you, boy—I mean, if they didn't treat you so much like shit! Hell, you get all the nooky you can handle, don't you?"

"The pleasure is not as great as you imagine, Fred. Neither is the pain."

"You lied to us, Sad Eyes. Why did you lie to us? The world never ended. Just went to hell in a handbasket, didn't it? How come?"

"The Gender Wars."

"Men against women, huh? I wouldn't have guessed it'd be that bad. Take Ethel—she's a bitch, but she knows she needs me."

"They stopped needing them, Fred."

"I don't believe it ..." Crickets. Wind. "That's not possible."

His second visit was a week later. Ethel had gone over to the women in another valley. "She wouldn't listen to me. She won't last out there. Sure, they treat her OK now; she's a novelty, see? But pretty soon, they'll just dump her. Then she'll come crawling back."

A month later, Ethel had not returned to Fred, and Fred had had some bad encounters with a men's tribe. His voice sounded wheezy. He stopped frequently in the middle of a sentence. Soon, I thought, the women will catch him—if they care to. Perhaps already they knew all about Fred's little visits. Perhaps they found the poor old male amusing, he with his small gametes, now largely immobile.

"Why did God make us men this way?" he asked me. "Why did He make us men wanting everything we don't have? If I had a couple of bumps and a hole, and if I could coo to myself the way a good woman will do you, that coo that makes all the crap worth taking, why I'd be a whole person. I wouldn't hardly need to eat, I'd be so goddamn happy."

I couldn't say anything to Fred. It was a mystery to me, too, I from afar. After a while, he just left. That was the last visit.

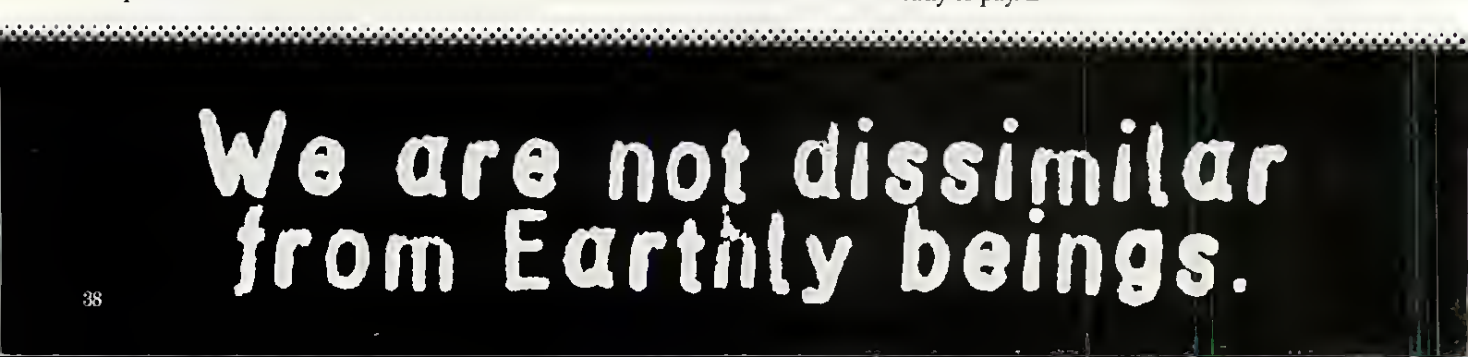
I LIVE, I LIVE, I LIVE, I FROM AFAR! NOTHING ON Earth kills me or causes me to decline further than at my first exposure. Generation after generation of women keeps me alive, albeit barely. I am good for little aside from supplying gametes, and yet my presence here has been instrumental in ending the latter skirmishes of the Gender Wars. The men are no longer seen. I watched them decline and disappear. Years? Decades? Centuries? Millennia? All the women came to me. I have been their religion. I have brought them children. I have brought their children children.

And now the Gender Wars will end for good and all. Nature no longer sees a profit in sexuality, it seems; life has become that regular that the variability engendered by sex is no longer an advantage—quite the contrary, for half of the genetic material of sexed individuals is always lost to the offspring. There is a new sort of human increasingly in evidence: the parthenogenones. Their fitness to survive is twice that of the old sort of human; they need not halve their germ to reproduce.

The women grow old and die. No one is interested in me, the old god from afar. The parthenogenones display little curiosity. Many institutions besides the rituals surrounding myself I see fall into disuse. With war, civilization generally departs. Sleepy harmony ensues. The parthenogenones are content.

I have my answer, I from afar, although the rest of my kind have been cheated of it. Perhaps even now they skirt yon star, bones of the human specimens rattling in steerage. The wound of sex cannot be healed; close the gap and kill the spark. The price of harmony is death.

Now I am ready to pay. □



ONCE UPON A MATTRESS

BY WIL MCCARTHY

1. In Which an Important Experiment Is Disrupted

IN THE EIGHTH DECADE OF THE QUEENDOM of Sol, on a miniature planet at the lower fringes of the Oort cloud, there lived a man named Bruno de Towaji who, at the time of our earliest attention, was beginning his 3,088th morning walk around the world.

The word "morning" is used advisedly here, since along the way he walked through the day and night and back again without pausing to rest. It was a *very* small planet, barely six hundred meters across, circled by an even tinier "sun" and "moon" of Bruno's own design.

Walk with him: See his footpath cutting through the blossomy meadow, feel the itch of pollens in your eyes and nose. Now pass through into the midday forest, with its shafts of sunlight filtering warmly through the canopy. The trees are low and wide, citrus and honeysuckle and dogwood, not so much a shady, mushroom-haunted wilderness as a compromise with physical law—taller trees would reach right out of the troposphere. As it is, the highest limbs brush and break apart the puffy summer clouds that happen by.

Pass the Northern Hills, watch the stream trickle out between them, see the forest give way to willows at its bank. The bridge is a quaint little arch of native wood; on the far side lie the grasslands of afternoon, the vegetable gardens tended by stoop-backed robots, the fields of wild barley and maize tended by no one, lit by slantwise rays. Behind you, the sun dips low, then slips behind the planet's limb. Despite the

The Ring Collapsiter encircling the Sun was self-destructing, with the only hope of Earth's survival the hermit genius of the Oort cloud.

refraction of atmospheric hazes, darkness is sudden, and with it the terrain grows rocky, not jagged but hard and flat and boulder-strewn. But here the stream winds back again, and as evening fades to night the channel of it widens out into cattail marshland and feeds, finally, into a little freshwater sea. Sometimes the moon is out, drawing long white reflections across the silent water, but tonight it's only the stars and Milky Way haze and the distant, pinpoint gleam of Sol. All of history down there; if you like, you can cover the human race with your hand.

It grows colder; realize you're only 50 meters from deep space, with no nearby fusion source to warm you. But the beach leads around to twilight meadows, and the horizon ruddies up with scattered light, and then suddenly it's morning again, the sun breaking above the planet's round limb. And there is Bruno's house, low, flat, gleaming marble-white and morning-yellow. You've walked a little over two kilometers.

Such was Bruno's morning constitutional, very much like all his others. Sometimes he'd fetch a coat and take the other route, over the hills, over the poles, through cold and dark and cold and hot, but that was mainly a masochism thing; the polar route was actually shorter, and a good deal less scenic.

He'd eaten breakfast already; the walk was to aid his digestion, to invigorate his mind for the needs of the day: his experiments. The front door opened for him. Inside, robot servants stepped gracefully out of his way, providing a clear path to the study, bowing as he passed, though he'd told them a thousand times not to. He grumbled at them wordlessly as he passed. They didn't reply, of course, though their bronze and tin-gray manikin bodies hummed and clicked with faint life. Mechanical, unburdened by imagination or want, they were utterly dedicated to his comfort, his satisfaction.

Another door opened for him, closed behind him, vanished. He waved a hand, and the windows became walls. Waved another, and the ceiling lights vanished, the floor lights vanished, the desk and chairs and other furnishings became optical superconductors: invisible. Projective holography created the illusion of his day's apparatus: 50 collapsons, tiny perfect cubes visible as pinpoints of Cerenkov light, powder blue and pulsing faintly, circling the planet together in a complex dance of swapping orbits.

He'd spent the past week assembling these, after his last batch had gone sour.

Assembling them? Certainly.

Imagine a sphere of di-clad neutronium: shiny not with reflection but with Compton scattering, for this is a sort of atomic nucleus, a billion tons of normal matter crushed down to a diameter of three centimeters so that the protons and electrons that comprise it are bonded together into a thick neutron paste. Left to itself it would, within nanoseconds, explode into a billion tons of protons and electrons again, this time with considerable outward momentum. Hence the cladding: crystalline diamond and fiberdiamond and then crystalline again, with a bound layer of wellstone to render it electromagnetically useful. Breaking the neutrons free of their little jail was difficult enough that Bruno had never heard of its happening by accident.

These "neubles" were the seeds of seeds—it took eight of them, crushed unimaginably further, to build a collapson—and the little "moon" was actually just Bruno's storage bin, a thousand neubles held together by their own considerable gravity. Another 1500 formed the core of the tiny planet, a sphere about half a meter across, with a skeleton of wellstone built on top of it, fleshed out with a few hundred meters of dirt and rock and an upper layer neatly sculpted by robots and artisans.

Bruno was very wealthy, you see.

But instead of moons and planets, one could also make black holes of these things, black holes held rigidly into stable lattices, a phase of matter known as "collapsium." Bruno had been the first to do this, and was still doing it these 70 years later. Not quite the life he'd expected or hoped for! But then again, the *potential* of it all ...

Black holes as elementary particles, like protons massing a billion tons, their surfaces able to devour light, to bend time and space, to tear energies loose from the zero-point field of the "empty" vacuum itself.

An enterprise worth getting up in the morning for!

Einstein may have changed the world with his famous equation linking mass and energy, but when you asked the more fundamental question—just what *is* mass?—you soon found yourself scribbling:

$$E = MC^2$$
$$M = E/C^2$$
$$E/C^2 = E/C^2$$
$$E = E$$

Mass is like energy because energy is like itself, just an electromagnetic vibration of the zero-point vacuum. Soon the quantum-age profusion of particles and forces falls away like a bad dream, leaving only charge, electromagnetism, and the vacuum. There is nothing else, no other force or substance required to construct the universe. And you wonder why you ever thought there was.

He began, picturing the control apparatus in his mind, feeling the vibrations there. *Zitterbewegung* vibrations, the "trembling motion" of charged particles buffeted by the very real energies of the zero-point field. Even the neutron is composed of quarks, charged +2/3, -1/3, and -1/3 proton-equivalents, and the secondary fields emitted by these trembling particles give rise to a net force that is always attractive, always infinite in range, always difficult to block or channel or deflect. Call it gravity—Newton did. The experiment had been performed dozens of times before Bruno came along: Isolate a proton, subject it to oscillating electric fields at frequencies comparable to those of gravitation, and measure the increase in its mass. The Haisch effect. Bruno's "genius" was simply to dump in a neuble's worth of mass-energy, upping the frequency and amplitude of the oscillation, upping the illusory mass until the neuble was gone and the proton weighed a billion tons, enough to collapse it into a miniature black hole.

The rest had seemed obvious enough: *two* black holes, not only vibrating but vibrating *each other*, their interactions exactly 180 degrees out of phase with their *zitterbewegung* motions, gravities therefore canceling out. That turned out to be statically rather than dynamically stable, but *eight* holes arranged in a cube *just* so, at excruciatingly precise distances, would hold their positions indefinitely, for billions of years, for as long as the Hawking-bled holes themselves would last. A stiff cage, a "collapson," the elementary building block of a wholly new material: crystalline collapsium.

Obvious.

And once you did this, once you began bricking the collapsons together into three-dimensional structures, you were well on your way to the control of physical reality at its most fundamental levels. That was the exciting part; the problem was that almost nobody was patient enough to work the equations, even to deduce which structures were stable and which were not, much less to derive the properties of the stable ones from first principles. The second-biggest problem was the accidents this tended to create, and the third-biggest problem was the 20 billion people who got upset when this occurred.

So of the handful of people competent to perform the research, most stuck contentedly to the safer paths, the trodden paths, the paths on which accidents were far rarer than fame and fortunes. Bruno had tried to be one of them, he really had, but making his telecom collapsiters faster and better and cheaper was *boring* compared to what he really wanted, which was to build an *arc de fin* capable of snatching photons from the end of time itself. Time *had* an end—the state equations made that clear enough—but what *sort* of end was the subject of endless noise and conjecture, and why grumble and theorize when you could just open up a window and look?

Hence these 50 collapsons, with their prancing orbits and their ghostly Hawking/Cerenkov glow. Not to build the *arc*—what a laugh!—but to build a tool which might build a tool which might build a piece of the *arc*, or at least point to a method by which it might be built. Bruno expected the project to last many thousands of years.

He was all but immortal, by the way, and like everyone else he was still struggling to come to terms with it. It wasn't so unequivocally wonderful a thing, really, a society in which death was always by suicide or freak accident or carefully concocted murder, in which the rare childhood death deprived its victim not of years or decades of life, but millennia. Such disparity, the very opposite of fairness. But again, the *potential* ...

Was it strange to be so excited, even after all these years?

Bruno's 50 collapsons weren't stable in their orbits, and couldn't remain there forever without some sort of collision or ejection event messing the trajectories up and making a ruin of all his hard work. So he compared them against the blueprint in his mind, pressed his fingers against the invisible desk to bring up an interface, and triggered the gravity induction mechanisms.

With them he grabbed a collapson, watched it jerk and flutter on his display. The forces he could apply here were weak, nothing compared to the gravity of the collapsons themselves, but of course the collapsons were in free-fall, where weak forces, adding up over time, were just as effective as strong ones applied suddenly. And Bruno had learned—often against his will—to be a very patient man indeed. Slowly, he took hold of a second collapson, nudged it toward the first, then nudged it again a few seconds later to reduce the closing velocity. With ponderous momentum they drifted together and finally touched. Their binding produced a flash of green; they continued on as a single joined piece. He grabbed a third collapson and carefully added it to the structure, grabbed a fourth and fifth.

The other collapsons seemed almost alarmed, their orbital square-dance taking place now as if on a gigantic quilt being ponderously dragged and folded around them. Bruno's movements were careful, practiced; he'd done this hundreds of times, made enough mistakes to feel out the limits and breakpoints and failure modes, to know what he could and couldn't get away with. Before his network gate had gone down and stopped the endless questions and exhortations of his fellow man, he'd often been asked why he did this part by hand, why he didn't devise some software to handle these exacting manipulations. If the question came from a scientist or technician he generally ignored it, but for the craftsmen and artisans and landscape designers he had a ready reply: Why don't *you*? The truth was, if he could automate this creative process he'd do it, and become the Queendom's richest human all over again.

SLOWLY, HIS DESIGN TOOK SHAPE: SOMETHING like a bucket, a fan, a lens. The shape wasn't useful in and of itself; most collapsium structures weren't. But to get to the shape you wanted, you had to pass through stable intermediate designs, adding bricks one by one without upsetting the system's precarious equilibrium. Often, this meant building complex shapes that "fell" into simpler ones when completed, as a key and a lock might fuse to extrude a single, solid doorknob. Or in this case, a kind of space-time crowbar able to "pry" bits of vacuum apart to see what lay beneath. Or so he hoped!

Before the assembly was half-complete, though, an alarm bell chimed: gravity waves. He thumbed a lighted yellow circle, increasing magnification, leaning forward to scrutinize the display, to isolate the source of the anomaly.

He didn't find it. Everything was right where it should be, his little Cerenkov pinpoints all well within spatial and vibrational tolerances. The warning chimed again, though, louder, the perturbation stronger, and Bruno cursed because the crowbar-to-be was in a very delicate stage right now, its collapsium lattice supported by little more than good intentions. He grabbed the ends of the structure, hoping to steady it, but through the desk's sensory pads he felt a mild shudder, then another, stronger one. The warning chimed a third time, and this perturbation *had* to be external, because soon his project was waving like a seaweed, the collapsons growing uncertain as their holes' gravitic interactions wandered in and out of phase.

"Excuse me, sir," the house announced, through a softly lit speaker that appeared in the wall. "A ship is approaching."

"Blast," said Bruno, and the collapsium slipped from his fingers and fell in on itself, an origami structure folding and wrinkling into a spitwad of glowing dots. Then the dots winked out one by one, and a few seconds later it was finished.

"ETA, seven minutes," the house said, providing a flat schematic wallplate that showed the approach vector in relation to planet, sun, and moon.

Bruno sighed. The newer, much larger black hole he'd just created was difficult to detect, lacking the clear emissions of a collapson, but he found it by feel, charged it with a stream of protons and then, with a grunt of disgust, hurled it off toward his *other* storage bin, the "wastebasket" hypermass orbiting his world a thousand kilometers out. The trajectory was fine, nowhere near that of the approaching ship. Maybe he should have arranged to graze them with it, a warning shot, a demand for apology. But no, such horseplay could too easily go wrong, else he wouldn't be stuck out here in the first place.

He sighed again, already trying to convince himself that seven days' lost labor meant nothing, that he had plenty more—infinitely more—time where that came from. The dollar expenditure was actually harder to accept: Two hundred neubles down the drain, literally, along with the 20 he'd wasted last week, and the eight last month, and the 20 more he'd thrown—at one time or another—into the wastebasket for this or that reason. The moon grew smaller, ever smaller, in his sky, and while he certainly had the money to buy more substance for it, the logistical difficulty of *getting* it here was daunting. His last shipment had required the efforts of tens of thousands of people, whole corporations commandeered for the purpose, and altogether the enterprise had cost nearly as much as the planet itself.

Cursing once more, Bruno waved the floor and ceiling lights back up. Glass windows appeared in the walls, admitting the morning sun once again. His furniture reverted to wood—wellwood, anyway—its colored controls and displays vanishing, leaving smooth surfaces behind. A couple of murals appeared, beneath the stenciled images of telescopes and rocketships on the walls. A plain room, small, uncluttered, and maybe a little old-fashioned, exactly as Bruno felt a study should be.

"I apologize for not detecting the vessel sooner," the house said with quiet, reflexive contrition.

"It's all right," Bruno grumbled, and surprised himself by meaning it.

"The vessel is approaching much faster than a neutronium barge would do," the house went on, as if feeling the need to explain itself. "Anticipating nothing of the kind, I'd set the detection radii much too close. The failure of your experiment was likely a direct result."

Bruno waved himself a door and exited into the living room, which was a mess of models and food containers and discarded clothing, which was exactly as *that* should be, but seeing it now he nodded, pursed his lips, and said, "Stop apologizing and clean this up. If we're to have company, we must be presentable, yes? What's the ID on the ship?"

"None available, sir. Our network gate is nonfunctional. For four years now."

"Oh. Right."

The robot servants were neither wholly autonomous nor wholly appendages of the house software, neither self-aware nor rigidly programmed. Creatures of silent intuition, they danced through their chores like dreams, like puppets in some tightly choreographed ballet. They knew just what paths to take, what joints to swivel or extend, their economy of motion perfect. They knew just where to put everything, too; most of the clutter was faxware and went back into the fax for recycling, but some objects were original or natural or otherwise sentimental, and each found a place on a shelf or table, or in his bedroom closet around the corner. Speaking of which ...

"Seal that," he said, gesturing at the bedroom door. It slid closed at once, merged with the wall, sprouted bright mural paints—nonrepresentational.

He grunted. "ETA?"

"Five minutes, twenty seconds."

He grunted again. The house had standing orders never to mark time in seconds—there were just too many of them, a whole eternity's worth. But under the circumstances, he supposed it had little choice.

Visitors. Visitors! Suddenly alarmed, he sniffed himself. "Damn, I probably stink. These clothes are probably ugly. Bathe and dress me, please. Quickly!"

The robots were there so fast they might well have anticipated the request. Cap and vest and tunic and breeches were torn from Bruno's body and hurled into the fax orifice for recycling, and he forced himself to relax, to let his arms be lifted, his torso turned. The robots, with their faceless expressions of infinite gentleness, would rather die than cause him the slightest injury or discomfort, and any resistance on his part would only slow them down, make them gentler still. He let them work, and in another moment their metal hands were buffing him with sponges and damp, scented cloths. A wellstone grease magnet was stroked seven times through his hair, becoming a heated styling comb on the eighth stroke. The fax produced fresh clothing—suitable for company—which smoothed and buttoned itself around him as the robots fussed.

He refused an application of blush.

"Is it landing here? Nearby?" he asked.

"Its course indicates a touchdown in the meadow, 40 meters to the east. It is recommended that you remain indoors until this procedure is complete."

"Hmm? Yes, well. Full transparency on the roof and east wall, please."

Obligingly, a third of the house turned to glass. To actual glass, yes—wellstone was an early form of programmable matter—and if danger threatened it could just as easily turn to impervium or bunkerlite, or some other durable superreflector.

Despite the interruption, despite the loss of his collapsium and the rudeness of this too-swift approach, Bruno found himself almost anticipating the landing, the arrival of visitors. Almost. It was a long time since he'd last had company, and that was just the men from the neutronium barge, eager for a breath of fresh air before turning their ship around and faxing themselves back home.

The morning sky shone brightly through the glass. Bruno asked for a reticle to indicate the ship's position, and the house obligingly cast up a circle of green light the size of a dinner plate, which barely moved and inside which he could see nothing. Soon there were glints of yellow-white at the center, though, sunlight reflecting from bright metal, and in another minute he could see an actual dot beyond the shallow blue-white haze of his atmosphere. The dot resolved into a little toy ship, then a big toy ship drifting high above the sky, a wingless metal teardrop spilling outside the boundaries of the green reticle, and finally, with alarming swiftness, it swelled to something the size of his house and burst though the feathery cirrus layer and the haze beneath it. Clouds rolled off its bright burnished skin, seeming to wrinkle and snap in the blur of a gravity-deflection field. Jets fired, little blasts of yellow-hot plasma that scorched his meadow grass white, then black, in tight bull's-eye circles. A shadow raced from the horizon to throw itself beneath the vehicle as the space between it and *terra firma* shrank to meters, centimeters, nothing.

There was no thump of impact, no solid confirmation of landing until the maneuvering jets darkened and the shimmer of deflection field snapped away into clear focus. The sounds of re-entry and landing had been no louder than a breeze through the treetops. Skillfully done.

What fixed his attention, though, was the seal imprinted on the side of that gleaming hull: a blue/white/green Earth shaded by twin palms, with three more planets hovering in the background. And hanging above them all, a crown of single-cast crystalline diamond.

"Door," he said, standing in front of a row of shelves, looking past them at the landing site. The house seemed to hesitate for a moment, as if wondering whether to open the wall right there—carefully, of course, so as not to drop or break anything—or to make him go a few steps around. Which choice would minimize his inconvenience and displeasure? But the decision itself, teetering precariously at a balance point, took long enough that he became annoyed anyway.

"Door!" he snapped, when almost two seconds had expired. The wall before him opened instantly, robots rushing quietly forward to steady the shelved vases and picture frames, to whisk the little drink table out of his way. He stepped through the opening, out into dewy, meadow-fragrant air.

The side of the ship was marred by a rectangular seam, ringed all around with rivets. No wellstone, that, but honest metal, a passive device for containing air, for holding out vacuum. A hatch. Presently, light fanned from its upper edge, and it swung downward, revealing a carpeted staircase affixed to its inner surface. This made contact with the ground, forming a perfect little exitway.

On the other side stood a pair of dainty robots, delicate-looking things with frilled tutus ringing their waists and feathered caps slanted *just so* on their heads, their metal hands bearing ceremonial halberds that looked as if they might be twisted out of true by a strong breeze or a harsh word. In perfect synchrony, the pair descended the staircase and came straight forward, straight toward Bruno. The ship had been set down with even greater care than he'd first realized, set down by entities obsessed as much with decorum and pomp as with aero- and astrodynamics.

Ten meters away, they stopped, clicked their metal heels, and bowed.

"Declarant-Philander Bruno de Towaji," one of them said—or maybe both, in too-perfect synchrony to distinguish, "we bring you the greetings of Her Majesty, and a request for your immediate audience. You are to come with us."

It was always strange to see robots speak, because they did it so rarely and because they had no mouths. By royal decree, it was Uncouth to build machines with faces, or hair, or genitalia, except for the express purpose of sexual perversion, which was itself Uncouth and needed no further encouragement.

"Excuse me?" Bruno said.

"You are to come with us," the robots repeated, their joined voices fluid, elegant, courtly in a mechanical, clockwork-ballerina sort of way.

"Really. Am I to know why?"

"It is a matter of utmost importance, Declarant. The explanation of it is beyond our tasking."

"Beyond your tasking. I see." Bruno nodded sagely, thinking to wonder whether his image was being recorded or transmitted, and if so, whether he looked dignified and wise or simply hermitty, possessed of too much hair and beard. "Her Majesty isn't with you, then, all the way out here. And why should she be?"

FEELING A SUDDEN, PETTY ANGER, HE WHISKED OFF his cap and threw it at their golden feet. "Pick that up. Deliver it. It's my reply. If Her Majesty wishes an audience, she is cordially invited to enjoy it here. My work, alas, does not permit me to travel at this time."

The robots considered that.

"Her Majesty requests your immediate presence," they finally said. "Groundless refusal is both Uncouth and Inconvenient. There is no reason to be rude."

"Rude? Not at all. Not a bit of it. Tell Her Majesty that it pleases me to answer her every request. The requests of robot messengers, however, will hardly obligate me. You've interrupted important work, *expensive* work, without explanation or apology. Her Majesty is ill-served by such tools as you and is invited to petition me by the much more reliable method of face-to-face communication. Unfortunately, my network gate is down. I'm afraid you'll have to go back and fetch her in the flesh."

Baiting robots was a fool's hobby—they had no feelings to hurt, only needs and obligations to fulfill. They could be frustrated, in the same way that a deaf man could be shouted at: They saw you doing it, knew what it was, but would never be affected in the desired way. But by the same token, this made them ideal absorbers of displaced anger. Killing the messenger was fine and dandy, when the messenger was never alive in the first place, when any fax machine could

recycle its smashed components back into the original robot. Not "good as new," but actually, literally new. So a little baiting was harmless enough.

Wordlessly, the robots turned and went back up their staircase, which lifted and closed behind them with a faint clunk and hiss.

Bruno retreated a bit, waiting for some indication of impending liftoff before hiding himself back in the house again. But the ship sat, and sat, and sat some more, and finally he understood: There was a fax gate in there, a fax machine coupled to a high-bandwidth network gate to the Inner System Collapsiter Grid, the Iscog. The robots were faxing themselves back to Her Majesty's throne room to deliver his "invitation," and clearly, since the ship remained, they expected her to take him up on it.

So much for his cleverly courtly manners.

Bruno had his own, fully functional fax machine, of course. For years he'd been getting his clothing and equipment that way, built up atom-by-atom from stored patterns and extruded whole through orifices inside and outside the house. It produced much of his food as well, supplementing the fruits of his stubbornly anachronistic garden.

The gate could even reproduce a person; he'd done the old parlor trick a time or two, spending the afternoon with a perfect copy of himself. Well, two copies, actually, with the original being destroyed in the reading process, but this amounted to much the same thing in the end. You were supposed to hit it off at first and then it would quickly get on your nerves, but Bruno had found his own company alarmingly dull; what did he have to teach himself that he didn't already know? He could send a copy off to learn new things, he supposed, but he wouldn't want to *be* that copy, sent away from the only work that mattered, and one of him would have to be. Invariably, he reconverged the copies within the hour, faxing them back into himself, concluding that maintaining one Bruno de Towaji was quite trouble enough. Hence the disinterest in repairing his failed network gate.

The silence of network-abstinence had been nice, too. He'd better enjoy the last of it while he could, before the robots came back with company, or else hauled him through their gate by main force.

He was just turning to re-enter the house when, to his utter surprise, the hatch opened once more on the side of the metal teardrop, swinging its staircase out and down, framing in its doorway the figure of none other than Her Majesty herself. The robots followed at a respectful distance as she descended the steps.

Staring stupidly, Bruno computed: Earth, regardless of season, was always at least seven light-hours away. For the robots to return there and come back with Her Majesty in tow should have taken 14 hours. Even if she'd been on *Jupiter* for some reason, it would have taken more than 12, possibly a lot more, depending on where the planet was in its orbit. Ergo, she must have sent her pattern ahead, timing it to arrive when the ship landed. Had she anticipated his refusal? She might simply have broadcast her image into the void, instructing the robots to capture and instantiate it if the need arose. There was something cold-bloodedly logical about that sort of reasoning, and that was how he knew it was true. *Quod erat demonstratum.*

The spaceship's stairs were carpeted in red, and their metal base extruded still more carpet, its end snaking out ahead of the Queen across scorched grass and flowers, until finally it stopped, seemed to gather itself for a moment, and then extruded a low platform, a little marble pedestal rising up as if exposed by receding tidewaters. Her Majesty mounted this platform, and the robots assumed stations on either side of her, ceremonial halberds at the ready. Ceremonial, hell; she was here, and they carried no other obvious weaponry. Those blades could probably cleave the planet in two.

The robots spoke more haughtily than before: "Declarant-Philander Bruno de Towaji, you may present yourself before Her Majesty Tamra Lutui, the Virgin Queen of All Things. You are encouraged to kneel."

Clad in that shade of purple forbidden to all other users, with the diamond crown atop her head and the Scepter of Earth in her left hand and the Rings of Mars, Jupiter, and Saturn on the fingers of her right, she was black-haired and walnut-skinned and scowling deeply. She was beautiful and terrible and in a bad mood, and could destroy him with a word.

"Hi, Tam," he said lamely, then sighed and threw himself to his knees.

2. In Which an Urgent Plea Is Heard

IT'S DIFFICULT TO UNDERSTAND LIFE IN THE QUEENDOM WITHOUT knowing a little something about wellstone. For the sake of clarity, we'll get this out of the way; it isn't difficult.

First off, consider the humble semiconductor, which is an insulating substance that can nonetheless conduct electrons within a certain range or "band" of energies. The most common of these is silicon, whose native oxide is the main crustal component of every terrestrial moon and planet. Silicon's electrical properties are fixed by immutable physics, but through "doping," the carefully controlled introduction of impurities, its crystals can be tuned so that, for example, room-temperature electrons have a good chance of jumping up into the conduction band when a voltage is applied.

Now, by layering these doped silica in particular ways, we can trap conduction electrons in a membrane so thin that from one face to the other, their behavior as tiny quantum wave packets takes precedence over their behavior as particles. This is called a "quantum well." From there, confining the electrons along a second dimension produces a "quantum wire," and finally, with three dimensions, a "quantum dot."

The important thing about a quantum dot is that if it's the right size, the electrons trapped in it will arrange themselves as though they were part of an atom, even though there's no atomic nucleus for them to surround. Which atom they emulate depends on the number of electrons and the exact geometry of the wells confining them, and in fact where a normal atom is spherical, such "designer atoms" can be fashioned into cubes or tetrahedrons or any other shape, and filled not only with electrons but with positrons, muons, tau leptons, and other exotica to produce "atoms" with properties that simply don't occur in nature.

Lastly, the quantum dots needn't reside within the physical structure of our semiconductor; they can be maintained just above it through a careful balancing of electrical charges. In fact, this is the preferred method, since it permits the dots' characteristics to be adjusted without any physical modification of the substrate.

So picture this: a diffuse lattice of crystalline silicon, superfine threads much thinner than a human hair crisscrossing to form a translucent structure with roughly the density of balsa wood, a structure which, like balsa wood, is mostly empty space. Except that with the application of electrical currents, that space can be filled with "atoms" of any desired species, producing a virtual substance with the *mass* of diffuse silicon, but the chemical, physical, and electrical properties of some new, hybrid material.

Being half-composed of silicon, wellstone iron is less strong than its natural cousin, less conductive and ferromagnetic, basically less ironlike, and if you bash it over and over with a golf club it will gradually lose *any* resemblance, reverting to shattered silicon and empty space. On the other hand, it's feather-light, wholly rustproof, and changeable at the flick of a bit into zinc, rubidium, or even imaginary substances like unobtanium, impossibilium, and rainbow kryptonite.

Well, half-kryptonite anyway; the rest is still silicon. However, since the theoretical properties of the "pure" substance will never occur outside a quantum well, the distinction is largely moot. The copyrighted element Bunkerlite, for example, is a million times stronger than the wellstone matrix that supports it. Together, they're merely *half* a million times stronger.

Wellstone can also form compounds, amalgams, admixtures, sinters, and even whole solid-state devices; a thin square of it can be a hypercomputer if you like, or a clear glass window, or a stunningly accurate painting of your sister.

So it's handy stuff to have around, particularly in conjunction with nanoassemblers and other semiadvanced technologies of the third millennium. The thing you need to remember is that by Bruno de Towaji's time it was also dirt-common, its infinite potential mainly in the hands of bored or inept programmers who'd rather be looking at counterfeit naked pictures of the Queen.

She was a figurehead, by the way. She couldn't *literally* destroy him, have him killed, have his pattern erased and his name stricken from every stone and pillar, but she could make his personal and professional life difficult enough that he might wish she had.

"Don't 'Hi' me," she snapped as Bruno knelt there before her. "Rise. Approach."

Ground moisture had soaked through the knees of his trousers. After rising, he wiped them absently with his hand, then caught himself and wiped the hand on his vest, in case she demanded to shake it or something. Approaching gingerly, he spread his arms.

"My world, Your Majesty. Welcome."

She nodded. "Yes." Then she cocked her head, looked at him strangely. "Are you all right? Why are you leaning like that?"

He blinked. "Leaning? Ah, it's the curvature. The planet being so small, local vertical swings a full degree every six meters. Your 'up' is not the same as mine. The trees—" he pointed "—seem to tilt away from you as well, more so the farther away they are."

The Queen of Sol surveyed the horizon, nodding absently. "I wondered about that. The way the ground slopes away, I feel I'm standing on a mountaintop. Is that your house down there?"

"Yes," Bruno replied, following her gaze. "It isn't 'down,' though; the ground's quite level here. Shall we go inside?"

She nodded. "Somewhere we can sit, yes. There's much to discuss."

"I'd gathered."

He led her back across the meadow, dainty robots trailing behind. Her velvet skirts smoothed a trail in the grass as she walked, the sunlight full in her round face. Even her long shadow was more regal than lanky, a Queen among its kind. Bruno couldn't keep his eyes forward. Didn't try.

"It's closer than I thought," the Queen remarked as they approached the house. "Smaller. You've dwelt in a shack all these years? A hovel?"

Bruno shrugged. "The planet size again. Any broader and the curvature of the floor would become apparent. You couldn't roll a ball bearing on that floor, it's gravitationally flat, but the indoor eye prefers straight lines and right angles."

"Another level, perhaps?"

He shook his head. "The upper story would feel less gravity, and a lot less air pressure. Thirty percent less. The gradients are steep on a planet this small." He pointed to the snow-capped Northern Hills. "The air's thin up there. And cold."

She smiled. "Those little things?"

"My Himalayas. I'm quite comfortable, Tamra, really, and I don't think you've come here to remodel the planet."

Bruno waved for a door as they approached. It opened, and they stepped through. The house had remodeled itself in his absence, throwing down trails of red carpet joining furniture more elegant than he'd normally employ. Chandeliers of gold and diamond hung from a ceiling striped with stained glass murals of green and tan and blue, stylized scenes from Her Majesty's native Tonga. They moved and changed almost too slowly to see.

Presently, a ring of speakers formed along the walls at chest-level, and began playing "Thank God for the Revival of Monarchy," which was the Queendom of Sol's quite popular unofficial anthem; its official one was the dreary "Praise Upon Her," which was almost never played. Or hadn't been, anyway, when Bruno's network gate last functioned. He supposed fashion had probably overtaken such musical preferences by now, along with all the clothing and furnishing styles he knew best. Fashion was always doing things like that, making the most ordinary things seem ridiculous and the most ridiculous seem ordinary. Immortality had yet to bestow any higher aesthetic upon the Queendom, although he supposed that, too, could have changed in his absence.

It was 19 years since he'd quit Tamra's court, 11 since he'd quit civilization altogether, trading it for this silence, this peace and solitude.

He realized he should speak, behave as a host. "Uh, refreshment? Food, drink? I have vegetables fresh from the soil."

She wrinkled her nose. "Thank you, no. A glass of water, perhaps. Shall we sit?"

"Oh. Yes. Forgive me." He indicated a chair beside a low table, waited until she'd seated herself, waited until she'd nodded permission for him to join her, and finally sat in the chair across. A gently clicking robot appeared, whisked a pair of icewater glasses onto the table between them, and was gone. "You look well, Tamra."

She studied him for a few moments before replying, "You look like you're playing yourself in a melodrama. Gray hair suits you, I suppose."

Her tone, while sharp, was not unkind. Like her expression and her too-correct posture, it bespoke a mingling of amusement and ire and haste, as well as a kind of bruised dignity. He'd left her court without permission, after all, and whatever business drew her here now ... well, he'd made her jump through hoops for it, hadn't he? What urgency would permit a Queen to beggar herself before a man like him?

"Something's happened," he prompted. "Something awful."

She shook her head, but her eyes looked nervous, uncertain. "Not awful, no. Inconvenient. A... project of ours has gone awry. No one's been hurt, but there's a ... cleanup effort that isn't progressing well. I thought perhaps you'd have some advice for us."

Bruno wasn't sure he understood, and said so. "My so-called expertise is in collapsium engineering, Highness. Industrial accidents are hardly ..." He caught her expression. "Oh, I see, it *is* a collapsium accident."

SHE NODDED, PURSING HER LIPS, AND FOR a moment Bruno felt paralyzed by her beauty, unable to think, unworthy to speak. The human brain was said to be *wired* for monarchy, for hierarchy, for the elevation and admiration of single individuals, and now the truth of this hit Bruno like a heavy gilded pillow. There wasn't any one thing about Tamra Lutui—not her long black hair or the tilt of her head or the gentle swell of her hips and thighs and bosom—that should affect him so. He knew her very well indeed, well enough that her pout shouldn't fill him with this boyish trembling awe. But she was Queen, and that made all the difference in the worlds.

Her Majesty, being well familiar with this reaction, this social allergy, waited politely for it to subside.

"Yes," she said finally. "A collapsium accident. You should be proud of us, Bruno, we've finally attempted something big. Too big, evidently, though we can still hope for a favorable outcome."

Bruno leaned forward, suddenly very interested. "Tell me more, Highness."

Her Majesty rapped the tabletop. "Sketchpad, please." Obligingly, the table darkened, and where her finger traced, colored lines and dots and circles appeared. "This is the Sun, all right? I can't draw, but these here are the orbits of Venus, Earth, and Mars. Sol is *big* in the inner system, and if two planets are aligned with the sun between them—opposition, they call it?—then network signals have to be sent around via satellite. There's a time delay associated with the extra distance, and this implies a cost."

"Yes," Bruno agreed. He'd laid the foundations for the collapsiter grid himself—besting previous network bandwidths by six orders of magnitude—and he knew a thing or two about how the system worked.

Tamra looked up at his tone, glared mildly. "Some of our people have worked out a fix, Declarant, by putting an annulus of collapsium around the sun. A 'Ring Collapsiter,' as it's known."

"Ah, yes," Bruno said, grasping the idea at once. The speed of light was much higher in the Casimir supervacuum of a collapsium lattice than in the half-filled energy states of normal space. A *ring* of collapsium encircling the sun could admit signals at one side, expel them

at the other, and save the time not only of the trip around, but of the trip *through* as well. Like a highway bypass where the speed limit was a trillion times higher than in the gluey-crowded streets of downtown. Why crawl through when you could blaze the long way around in half an instant, cutting light-minutes off your journey? "Very elegant, very impressive. Very *expensive*, I'd imagine."

Tamra shrugged. "The cost ladies say it'll pay for itself in a century, through increased efficiency. It's actually just the first piece of a whole new kind of network our componeers envision: a spiderweb of collapsium threads stretching to every corner of the Queendom."

That metaphor had been stretched a few times too many, Bruno judged. A "spiderweb" would twist apart in hours, each rung of it orbiting the sun at different levels, different velocities. Unless ...

"Good Lord. This ring of yours. It's static?"

Tamra quirked her head, not understanding.

"It's stationary?" he tried. "Does it orbit the sun, or is it suspended above by some other means?"

"Oh," she said, nodding. "Static, yes. I'm told it needs to be, to function properly. You'd have to ask Declarant Sykes's people for the details."

Bruno marveled. A static ring completely encircling the sun? The mother of all collapsiters, not orbiting but *hanging* above its parent star like a gossamer suspension bridge? Unthinkable! Life in the Queendom certainly *had* changed in his absence. He found his mouth filled with questions.

"What holds it up? Good Lord, what holds it *together*? You'd have standing waves around at multiples of the gravitic frequency. Around the ring, that's fine, but *across* it I don't see how the phases would match. You'd get shearing forces that would tend to pull the collapsium out of—"

He caught himself; Her Majesty's expression showed nothing more than polite incomprehension. Sol was fortunate to have a Queen so sharp, so quick, but it had trained her in more superficial pursuits, made a kind of glorified video star of her. No scientist, she.

"Forgive me," he said, bowing his head, exposing his hair's grayed roots to her inspection. "I'll stop interrupting. What problem brings you here? To me, of all people?"

She frowned, the troubled creases deepening across her face. "Bruno, I need you to come back with me. Really. Fax yourself downsystem, have a look at this thing, tell us what we can do. I wouldn't have come all the way out here if it weren't important."

"The ring needs stiffening?" he guessed.

She shook her head. "Every analysis tells us the design is sound. Even the environmentalists agree it's more than strong enough, even now, when it's only a third complete, still held up by those electromagnetic grapple thingies."

"Hmm. So what's the problem?"

Her Majesty sighed, fidgeted, as if embarrassed by some personal inadequacy. Finally, she said, "We had a solar flare last month. A big one that hit the collapsiter dead center and burned out half the grapples that were holding it up. We're moving new ones into place, but ..."

"But meanwhile the structure is slipping," he said.

She nodded, then picked up her glass and drank deeply from it, as if the icewater might soothe her nerves. Afterward she held onto the glass, kept it close to her lips, until Bruno realized it was her excuse to keep from speaking further. When he'd waited long enough for her next words, she would take another sip, and another, until finally the silence had dragged on long enough and Bruno was obliged to fill it himself.

It was uncharacteristically clumsy of her, yet another indication of her distress.

"It's accelerating," he suggested. "You can't get enough grappling force in place fast enough."

Again, she nodded.

"When a boulder first starts rolling downhill," he said, reaching for the sort of analogy she preferred, "you can stop it with a well-placed pebble, but if you're late on the scene it takes more, a stone, an iron chock. And if the boulder rolls over those ..."

She set down her glass. "You have the essence of it, yes. As the ring falls closer, the sun's gravity increases, and we simply can't build new grapples fast enough to stop it. I'm told we've got six months."

It was Bruno's turn to frown. "Six months before what? Before this 'Ring Collapsiter' falls into the sun?"

Tamra nodded yet again.

Bruno felt the blood draining from his face. "Good Lord. Good *Lord*. An accident indeed!"

"Will you help?" Tamra asked, her tone hovering right at the edge of plaintive. As if he had some right to refuse her. As if he had even the *ability* to refuse her. His glance took in her copper eyes, her almond skin, the royal elegance of her purple dress, cinched at the waist with a chain of gold. With a start, he realized it was precisely the outfit he'd last seen her in. Precisely the haircut, precisely the cosmetic palette. Had she worn it deliberately, in some coarse attempt to influence him? He found the idea unsettling.

"Glass ceiling," he said to the house. Light flooded in. Looking left and squinting, he pointed. "My sun warms exactly one subject. Yours warms billions. Even assuming a solar collapse were somehow survivable to those nearby, which I doubt very much, the idea of there being no Sol to have a Queendom of ... Tamra, do you think so little of me? Why are you here? Your robots should have *dragged* me to you."

She paused, then brightened. "I ... yes. I knew you'd help."

"Did you?" He hoped his scowl was impressive. "Lead me to your fax machine, Highness, and think no more of it. We leave at once!"

3. In Which an Impressive Structure Is Examined

THEY STEPPED THROUGH TO A WORKMAN'S PLATFORM, A FLAT, domed-over plate of di-clad neutronium large enough to host a volleyball match.

Bruno's breath caught in his throat. "Good Lord," he said.

"Yes," Her Majesty agreed coolly.

Diamond—the crystalline form of carbon—is beautiful because its high index of refraction traps and splits the light passing through it. The stone is clear to the eye, but the speed of light inside it is less than that of the empty air, and so the light that enters is forced—very much against its will—to slow down. Photons striking the diamond's faces head-on will pass through grudgingly, while those striking at shallow angles will be reflected, just as the sky is reflected in even the clearest ocean. At a distance, that is; directly beneath your boat, the water remains transparent, its reefs and fishes clearly visible below.

But the index of refraction, dictator of the angles at which these transparencies and reflections occur, is really a function of wavelength, or "color," and so a ray of white light may find its red or yellow or green component stripped away, echoed off in a different direction, the parent beam stripped and stripped again until there are no colors left, until all the colors are shunted onto wildly different paths. Some of the sparkles in a well-cut diamond have struck four or five or even six faces before finding their way back out.

When diamond surrounds a core of degenerate matter, the effect is heightened further by the pure Compton scattering of photons off the neutron surface. To say that neutronium is "white" is like calling bagpipe music "tinny," or nuclear fusion "warm," because pressed-together neutrons absorb *no* light, reflect *all* of it. But they reflect it randomly, not perfect mirrors but perfect scatterers, manifesting a platonic ideal of whiteness without surface or texture or boundary, a pure radiance that's further shattered through rainbow facets of carbon.

But even di-clad neutronium is dull and lifeless as cut glass in the haunting light of a collapsium, inside which a sundered light beam can circle for days or weeks, or until the end of time. And just as the speed of light is higher in air than in diamond, and higher still in the zero-point "vacuum" of empty space—which is actually filled

to bursting with short-lived virtual particles—so too is the speed of light higher—a trillion times higher—in the Casimir supervacuum of the collapsium lattice. Light and particles inside the lattice can travel swiftly, exit energetically, scream in distress on encountering once more the molasses of standard vacuum. "Cerenkov" radiation is the ghostly blue light given off by particles forced to slow to a more leisurely light-speed, and it is *this* light for which collapsium is best known.

So imagine an arch of it filling the sky. Imagine a universe of stars reaching up to infinity above you, pinpoint splashes of light filtering through and around the collapsium. Imagine Sol beneath your feet, swollen and huge but eclipsed by a disc of di-clad, invisible but for the effect of its light echoing through the arch high above you.

Like choir music through the rafters of heaven, Bruno de Towaji would later write, to be quoted out of context for tens of thousands of years. In truth the passage continues, *Grand, enormous, an absurdity of unprecedented scale and scope. Heaven, yes, but as we dream it, beach monkeys fond of glitter. If it's God we hope to impress, I daresay a tower of socks would serve as well.*

This by itself is significant: that even Bruno de Towaji, upon seeing the Ring Collapsiter for the first time, reacted to it not as a work of engineering, but of art.

"Astonishing," he conceded.

"Yes," Her Majesty could only agree. Her two robots stepped through behind them, assuming positions on either side of the fax gate.

After them came a man—short-haired, short-statured, neatly shaved and groomed and dressed—whom the robots examined only briefly. They seemed to know him, and he in turn carried himself as one accustomed to their dainty-hard robotic scrutiny, and to the dainty-hard company of the Queen herself. He seemed properly respectful without appearing awed or worshipful or afraid, and for this Bruno approved of him instantly, although he also sensed, almost as quickly, something cool and detached back behind the eyes somewhere. Mathematical, one might say.

Bruno's people skills were a little out of practice, though, and we may suspect he put little credence in his first impressions, pending further analysis.

"Majesty," the man said, doffing his cap and bowing low, so that his hands nearly brushed the slick surface of the platform.

"Marlon," the Queen acknowledged, inclining her head slightly. "Thank you for coming so quickly. I take it you loaded your pattern here ahead of time?"

The man bowed again, less deeply, then offered a courtly smile. "I stow copies of myself where they're likely to be of use, Majesty. This one is a few days old, though I'll happily send for a fresh one if you prefer."

She shook her head. "Not necessary." To Bruno she said, "Marlon Sykes is the father of the Ring Collapsiter project. Without his prolonged and dogged efforts, this—" she indicated the collapsium structure towering above them "—would never have come about."

Did she mean the structure, or the accident? Was there reproach in her tone? Bruno couldn't tell, couldn't detect her mood through the calm mask she projected. But surely the implication was clear enough: Marlon Sykes had convinced her the ring project was safe. And he'd been wrong.

Well, God knew Bruno had been wrong before, probably at least as often as he'd been right.

"Doctor Sykes," he said, offering a greeting bow of his own.

The man smiled warmly. "*Declarant* Sykes, actually. It's nice to see you again, sir."

"Bruno," Tamra chided, "you know Marlon from your days at court." Now there was clear warning in her tone; she was embarrassed, and he, Bruno, was the cause of it.

He thought for several seconds, trying to place the name, the face. There *had* been a Marlon Somebodyorother, but he was First Philander, more an afterimage than an actual presence at court. Ex-lover to the Queen, allegedly a gifted matter programmer of some sort ... Marlon Sykes, yes. Good God, had the memories faded so quickly?

"Declarant Sykes," Bruno repeated, now bowing more deeply and assuming what he hoped was a tone of proper contrition. "Declarant-*Philander* Sykes, yes, of course! I've been isolated of late, sir, but the lapse is inexcusable. I beg your indulgence."

"Pfui," Marlon said with a dismissive wave and smile. "It's been years, and the acquaintance was never a strong one. This admirer is happy to be remembered at all."

"Hmm," Bruno said, unconvinced. "Yes, well...," and then, to cover the embarrassment he ought to be feeling at such a moment, he strode to the edge of the platform and looked down, pressing first his hands and then his forehead against the slick, clear surface of the dome, straining for a view of the Sun. Best he could manage was an edge of the corona, the vast, diffuse, superhot atmosphere surrounding it. As in an eclipse, magnetic field lines stood out clearly, looping threads of bright and dim against the blue-white glow, but much nearer than any eclipse he'd ever seen; beneath this platform, the corona flared huge, as wide as 10 full moons, as structured and detailed as a wreath of burning, phosphorescent ivy.

"We're close in," he said. "Six months until this ring falls in? Solar disturbances could begin sooner than that, as it passes through the chromopause."

He tried to picture such an event. Collapsium was a "semisafe" material in the sense that it didn't consume matter the way a large black hole would; its component hypermasses, being precisely the size of protons, couldn't *swallow* protons, any more than a standard manhole could swallow its cover. Generally, though, since electrons were much smaller—effectively point charges—exactly two of *them* could be absorbed before electrostatic repulsion overcame gravitational attraction, by which time the hole's mass—and therefore its diameter—would be 9.1E-31 percent larger. Thus widened, the hole *could* consume an unlucky proton that struck it just right—a statistical rarity but, given prolonged contact, an eventual certainty.

That second widening would slightly increase the chances of a third, which would in turn increase the chances of a fourth, and a few billion iterations later the invading protons would be free to crowd around the event horizon and spiral in, forming an ever-widening hole whose mass would eventually grow to disrupt—and finally crush—the collapsium lattice around it.

Would coronal plasma densities be sufficient to trigger such a chain reaction? The plasma nuclei would certainly cling to the collapsons as they fell past, sliding into orbit around the lattice points like planets in newly formed, rapidly growing solar systems. Enough nuclei to make a difference? Enough to alter the behavior of a star?

"There've been detailed simulations," Marlon Sykes said, after an apologetic clearing of the throat. "It's six months to the earliest symptoms. After that, barely a week until the photosphere is penetrated. It was the first thing we checked."

Well, now Bruno genuinely *was* embarrassed. Of course they'd check a thing like that, long before they ever thought to send for *him*. Marlon Sykes clearly was not stupid; the glittering arch above them was proof enough of that. Bruno stepped away from the dome, absently wiping at it where his forehead had rested, though no smear or smudge remained.

"Of course," he said, now with real, proper respect. "Of course you did. Forgive me, Declarant."

Sykes smiled, indulgently if not quite warmly. "Am I to forgive you every 15 seconds, Declarant? It seems a waste of our talents, this officiosity. Call me Marlon, please. Speak to me as a friend, loosely and without calculation, and we shall both be the happier for it."

Well, that seemed rather a courtly way of asking him not to be courtly. Was there some cunning insult here, buried in subtexts and subtleties? Bruno grunted noncommittally, then caught himself: What if there were? What did it matter? He was here to help Tamra, to help the Queendom in general and Marlon Sykes in particular. It wasn't difficult to imagine some rancor there, some resentment at imagined usurpations of authority and respect, but did that change the physics one iota? No. Better simply to state his thoughts, and subtleties of manner be damned.

Which, he realized, was exactly what Sykes himself—what *Marlon*—had proposed.

"Damn me," Bruno said, with forced cheer. "I've been away too long. Marlon it is, and you shall call me Bruno, or 'fathead,' or anything you please. We've a sun to save, yes? And not through foofery."

Marlon's grin widened. "Well spoken, fathead."

Despite Her Majesty's sharp intake of breath at this, the two men shared a sudden laugh, and Bruno felt the easing of a tension he hadn't known was there.

He looked up at the sparkling arch of the Ring Collapsiter again, this time with an eye for the details of its construction. Based on the spacing of its gently pulsing Cerenkov pinpoints, he judged the structure's zenith to be some two kilometers above the platform, its range increasing to perhaps millions of times that much as it sloped away to the sides. A ring, yes, but one so enormous that it looked flat, ruler-straight, until it had all but vanished in the distance, at which point it seemed to turn down sharply, and finally vanish beneath the platform. But for all its enormous girth, the ring was only about 20 meters thick. Its cross-section appeared to be circular—an observation that Marlon confirmed when asked.

So what were these other lights, these bright flarepoints of yellow-white, spaced along the lattice every half-kilometer or so?

"Curved sheets of superreflector," Marlon said, with something like rue in his tone. "Placed near the ring's outer edge, they reflect Hawking radiation back in the direction of the Sun. Since the radiation already headed for the Sun *isn't* reflected, there's a net downward flow of mass-energy, pushing the collapsiter upward. Like a very weak rocket engine, using collapson evaporation as the energy source."

"Goodness," Bruno said, impressed. "What holds the superreflectors in place?"

MARLON PURSED HIS LIPS, SHOOK HIS head. "Nothing, my friend. Nothing at all. They're perfect sails, and between light pressure, solar wind, and Hawking radiation, they start accelerating right away. Within an hour they're pushed too far to do any good, and within a few days they've exceeded solar escape velocity. Bye bye, superreflector. We could hold them down with electromagnetic grapples, but of course that simply reverses the problem of holding the collapsium lattice *up*."

"So it's useless, then," Bruno said cautiously.

Sykes gave an emphatic nod. "Quite useless, yes. I told Her Majesty as much—" here he raised his voice and glared mildly at Tamra "—but she's in a mood to try ... almost anything." And here his mild glare was directed at Bruno.

"Not your idea, then," Bruno said, ignoring what must certainly have been a deliberate jibe.

"No. Some functionary's."

They were silent for a while, Marlon looking at Tamra, Tamra looking at Bruno, Bruno looking at the collapsium arch, the two golden robots looking studiously at nothing.

"Tell me *your* idea," Bruno said to Marlon after a while.

The clearing of Marlon's throat held an indication of surprise, as if the question were unexpected. Bruno turned in time to see the smaller man blush. "*My* idea. The, uh, the grapples are my idea. Build them faster, you know. Find ways to crank them to higher frequencies, for greater pull. We have to pull the shunt *up*, away from the Sun. That's really the sole nature of the problem, dress it up however you may. We've got to *apply force* to the collapsium, and the grapples are our only means of doing so without tearing the lattice out of whack and creating ourselves an even bigger problem."

"Hmm," Bruno said, nodding absently, pinching his chin between thumb and forefinger.

A flicker of resentment crossed Marlon's features. "You disagree?"

"Hmm?" Bruno looked up, met Marlon's gaze. "Disagree? No, of course not. You've got the right of it, clearly."

Her Majesty sprang to life at that, coming forward, stepping almost between the two men, her eyes flashing angrily. "Nobody's giving up, Declarants. It's time to broaden your thinking, and *keep* broadening it until a solution emerges. That, or all your brilliance is for naught. There *is* a solution, I'm sure of that."

Marlon smoldered visibly at the rebuke, and it was several seconds before Bruno, deep in thought, realized the obligatory reply was his to make. "Um, yes," he said, looking up and nodding, because he didn't disagree with *that* statement either.

Tamra looked for a moment as if she might blow up, shout, grab his lapels or something, but presently she subsided, and Bruno, pinching his chin again, looked down to examine the reflection of the collapsium in the di-clad whiteness of the platform.

Time passed.

"Can I answer anything else for you, Bruno?" Marlon asked, with perfect politeness, when 10 minutes had gone by.

"Bruno?" he prompted diplomatically, after another 60 seconds. Finally he snapped his fingers. "Hey you, fathead! Are we through here?"

Bruno looked up, blinking. "Hmm? Oh, yes, please, go on about your business. I think I have all the information I need for the time being. The problem, as you say, is an exceedingly simple one, even if its solution is not."

"You don't need anything more from me, then?" Marlon prompted.

"Er, not that I can think of," Bruno said, realizing that some more time had passed. "I can reach you, yes? If further questions occur?" Then it dawned on him that he was being rude again, perfunctory, exactly the sort of intellectual boor Marlon had probably thought him in the first place. Usurping this other man's place, his project, his problems. To compensate, if belatedly, he allowed his gaze to narrow, his face to grow shrewd. "If you must go, Declarant, I implore you not to go far. This matter's been on my mind a fraction of the time it's been on yours, but once we're on a more equal footing, I'll be more ready to assist you."

Marlon Sykes was, it seemed, not impressed by such transparent flattery. Without a word he doffed his cap, bowed deeply, replaced it again, and walked to the fax gate, and if it's possible to disappear in a testy, irritable way, then be assured Marlon Sykes did just that.

"Nicely handled," Tamra chided, emphasizing the remark with a not-so-playful punch in the arm.

"Hmm?" he said, looking up. "What?"

She sighed, then removed the diamond crown and scratched the indented band it left across her forehead. "Bruno, Bruno. I thought you'd changed. You *seemed* to have grown, at first, matured, but maybe that was just the hair. Maybe we're just ourselves, irredeemably, until the end of time. A dreary thought. So are you going to stand there all night? If I bring you a chair, will you sit?"

He looked at her, struggling to understand what she felt was important here. Finally he just shrugged. "I'm comfortable enough, Tam. If I need to sit, I'll sit. There's a fax machine, right? So really, I've got everything I need."

"Oh," she snorted, half amused and half annoyed, "Now you're dismissing *me*. First clue for you, Bruno: I'm Queen of the Solar System. Second clue: I know you. Left to your own devices you'll happily starve out here."

He frowned, not liking the condescension in her tone. Was that what she thought of him? A helpless, hapless boy, incapable of even the most trivial self-sufficiency? "You're the first human being I've seen in nearly a decade, Majesty. I think I've gotten on rather well without your ... assistance."

"All right," she said, suddenly cold, suddenly turning to leave. "Fine, whatever. I'll fax you some servants." Then she stopped, wheeling again to face him. "No, I won't either. You're to come with me, Declarant-Philander Bruno de Towaji. I have a dinner party to attend this evening, and you will accompany me. You'll eat, you'll socialize, you'll belong to the human race for a few hours. Can I ask the Queendom to put its trust in a man who so openly spurns it? Hardly."

"Ah," Bruno sighed, finding his delicate chain of thought scattered, dismantled. "Bother."

"Bother yourself. You think best when you're distracted; leaving you here alone is a disservice to all." Frowning, she pinched the shoulder seam of his vest. "Bruno, where did you get this pattern? We'll need to stop by the palace, have it dress you in something suitable. And me, for that matter; we look like a couple of time travelers."

"From 20 years ago?"

She nodded. "At least."

Well humph, he'd been trying to be funny. There had been a time when Tamra had laughed at his jokes, finding them witty and apropos. So long ago? Perhaps he *should* go partying with her, freshen up the social skills a bit. With six whole months until disaster struck, he could hardly begrudge himself a single evening's fellowship, could he? Particularly when the Queen of Humanity herself commanded it?

He grunted suddenly, recalling that "disaster" meant, literally, "bad star."

"What?" Her Majesty asked, marking his shift of mood.

"Er, nothing. I'll ... tell you later." Perhaps *that* could be made into a joke, at the proper time and place. Or perhaps not.

Accepting that answer, she smiled tightly, took his hand, threaded her fingers through his, and began leading him toward the fax gate.

"Wait," he protested, "it's not evening now, is it?"

"It is on Maxwell Montes."

"Maxwell Montes? *Venus?* That's where we're going?"

"Yep. And it occurs to me we've less than an hour to get ready."

"But," he said, realizing the futility of the words even as they left his lips, "An hour? Bother it, I've only just eaten breakfast!"

4. In Which a Legendary Mead Hall Is Christened

MAXWELL MONTES WAS THE HIGHEST POINT ON VENUS, REACHING through fully a third of the planet's thick, toxic atmosphere, and as such, was the first place to become marginally habitable once terraforming began. Or so Tamra informed Bruno as her human courtiers—a trio of gorgeous but nearly flat-chested ladies affecting a quite implausible adolescence—fussed with the final details of his hair and clothing. He'd balked at sequins, but the palace had swathed him in green and black suede—the spurious zippers and snaps and buckles on the jacket complemented by fat laces down the trousers' outer seams. The matching hat was wide-brimmed and glossy, the sort of thing one expected a big ostrich feather to protrude from, although none did.

Each piece had looked absurd in isolation, prompting wild protestations which Bruno had barely—and imperfectly—held back. He had to concede, though, that the total ensemble did, in a strange way, suit him. The handmaids had wanted to stroke the gray out of his hair and beard as well, and now, eyeing himself in the dressing hall's triple mirror, he wondered what that might've looked like. No color was "natural" in this age of artifice, after all, and his own tastes were clearly suspect.

"Whom are you trying to emulate?" one of the would-be teenagers had asked him earlier, her voice brusque with amusement. The question gave him pause. His post-court appearance had evolved gradually, over decades, without much in the way of conscious planning or assessment. And yet, as Tamra also had teased him, he seemed to have become a sort of theatrical construct, less himself than an iconification of himself. Symbolizing what, he couldn't guess, but there it was: his eyes brooding between gray-black thickets, fat eyebrows merging with overlong hair, bushy sideburns slopping down into curls of untamed beard. The handmaids had done what they could in the time allotted, but still he looked uncomfortably like a mad prophet, combed over but hardly couth.

Bah, it had never bothered him until now. That was what contact with aristocracy bought you: foofery and self-consciousness without end.

"You look ... better," Tamra told him, shooing her courtiers away with a look.

"Yes," he agreed grudgingly, straightening a blousey sleeve beneath the cuff of the jacket. "I'm quite the dandy. Compliments to your software and staff; you do seem to surround yourself with the tasteful."

"Usually," she said, and took his arm.

Tamra herself had adopted a blue-gray, long-sleeved evening gown that—like Bruno's jacket—suggested Venus was no longer the hothouse of aeons past. Circling her brow was a simple silver band, adequate for semiformal occasions where she was, nonetheless, on public display.

Robot guards came to life for them as they approached the fax gate, transiting ahead of them to prepare the way. Stepping through was effortless: on the other side lay a gallery, a vast mall of stone and glass, its windows looking down on twilit cloud tops.

The robots' heels and toes clicked against a floor of glossy stone as they danced out of the way, elegantly unobtrusive, their movements interrupted not at all by the journey between planets.

Bruno marveled again that faxing now seemed to provoke no sensation at all, though their bodies were sundered, atomized, quantum-entangled, and finally recreated. Exactly as before? Indistinguishable, anyway. The soul, it was imagined, followed the entangled quantum states to the new location. Inconvenient to think it might be destroyed and duplicated along with the body, or worse, that copies of it might be piling up in an afterlife somewhere. But weighed against crowds and traffic and bad weather, people were surprisingly willing to take the risk.

At any rate, in the early days of faxing there'd been some pain, some discomfort, some small degree of disorientation that let you know the transfer had happened. This new way, it hardly seemed like travel at all. This might as well have been another room of Tamra's palace, or any place, really.

HE PAUSED AT THE TRANSOM, TURNING, eyeing their new surroundings dubiously. Venus? It looked more like Colorado, some glassine lodge clinging to the side of a mountain, looking down on someone else's rainclouds. Above, stars twinkled faintly, as if through a yellow-brown layer of smog. All around the floor were man-high juniper trees in iron pots, not in rows but scattered, a faux forest lying silent and still. Behind the fax gate lay the rock face itself, Maxwell Montes, sealed and structurally reinforced but otherwise left in a natural state, smooth basalt planes broken at jagged edges like petrified layers of pastry. The floor beneath them was opaque and solid, probably a single sheet of whiskered stone held up by metal stanchions and trusswork without a gram of wellstone anywhere in the mix. Why risk a power failure dumping one's party guests screaming into the cloud deck below? Not to mention one's junipers.

As far as other guests went, Bruno didn't see any, but then again this was clearly a kind of hallway, a place between places, albeit a large one—40 meters across if it was an inch. In both directions, the stone and glass followed natural contours of the mountain, folding around corners and out of view. They were on a promontory of sorts, a jutting outcrop of rock; above, the mountainside sloped away rapidly from the arcade's ceiling.

A faint, light snow was falling, he saw, clinging in places to the juncture of rock wall and sloping glass roof and, when enough had accumulated, spilling down the glass to be whisked away by swirling breezes. Beyond this, splashes of lichen were clearly visible on the rock face and there were even, he thought, some leafy plants waving up there in the gloom.

Below, the clouds somehow managed to look chilly, like Earthly rainstorms after the Sun has set.

"Venus," he said quietly. A parched, poisonous world of crushing pressures and furnace temperatures, tin and lead running liquid on its surface like so much quicksilver? No longer.

Tamra quirked her head at him as if puzzled by his stopping. "Something?" she asked. The view didn't seem to faze her, to affect her at all. Perhaps too familiar, too ordinary a thing in her life: a whole planet brought to heel, another ring for her hand.

He shook his head. "No, nothing."

He felt someone crowd in through the fax gate behind him, heard a grunt of surprise. "Excuse me," a voice said testily.

Tamra sighed, pulling him away from the gate. "You needn't stand *right there*, Declarant."

"Of course," he mumbled, his eyes still flicking around hungrily, taking it all in.

"It's been a while since you've seen anyplace new," she observed, with some degree of sympathy.

"Indeed," he said, nodding absently. "One forgets the sensation. The overwelmingness of it. One forgets how to be overwhelmed."

His gaze finally came to rest on her face, finding the expression there amused. This displeased him. "Is it intentional, Highness, to distract me from the very problem I'm summoned to solve? Changes of scene undermine one's concentration. If your desire is to frustrate me, I admit you've succeeded. If it's otherwise, I dare say you've failed."

"Oh, hush."

"De Towaji?" said another voice, a man's. Bruno turned, saw four strangers clustered at the fax gate now. Strangers, yes; he was quite sure he recognized none of them. The man who'd spoken was tall and thin, dressed head to toe in crimson, and—if Bruno dare say—possessed of the sort of shallow, almost effeminate beauty one associates with actors and politicians. Two of his associates were female, swathed respectively in yellow and green velour, dresses which seemed little more than long, endlessly winding scarves. The third, a portly man in indigo, was looking wide-eyed at Bruno.

"De Towaji," he echoed.

Oh, bother.

"Gentlemen," Bruno said, bowing slightly. Then, with greater conviction, "Ladies."

The ladies eyed him skeptically, this clownish figure late of the wilderness.

"My God," the indigo man exclaimed, "she went and got you, didn't she?" And the woman in green said, "You're here to fix the Ring Collapsiter." And the crimson man, at a loss but apparently feeling the need to say something, added, "Er, that's quite a handsome jacket!"

"Doctors," Tamra said, placing a hand on Bruno's back, "allow me to present Declarant Bruno de Towaji."

"Pleased," piped the crimson man.

"To meet you," the woman in green finished, half apologetically, touching the crimson man lightly on the hand. He was, Bruno saw at once, her husband, whose sentences she was well accustomed to finishing. The love and shyness and exasperation between them radiated out in invisible rays, like infrared. Warming.

The indigo man simply nodded.

Well, they made Bruno feel less clownish, at any rate. Or in better company.

Tamra looked at him sidelong and said, "Doctors Shum and Doctors Theotakos, of Elysium province." She paused, then added, "Mars."

And here were court nuances aplenty: Her Majesty had given these people's titles and last names, but not their firsts, meaning she knew them, but not well. And she'd made a point of emphasizing Bruno's rank over theirs; the Queendom's educational system being by far the best humanity had ever known, "doctor" was very nearly no title at all. There were more subtle levels in the exchange as well, as invisible and inevitable as the basalt pastry-layers beneath Maxwell Montes' outermost surface. That Bruno couldn't parse them—and wouldn't if he knew how—didn't mean their presence had escaped him. This much he knew: These Martians had been smartly, artfully dressed down, acknowledged for their value but instructed in no uncertain terms to keep their distance.

It was perhaps a necessary gesture, reflexive, else Her Majesty would be mobbed at all times with admirers. Such was her job, after all: to be admired. But it was still a snotty thing to do, and Bruno felt an instant sympathy for its victims.

"I am very pleased to meet you all," he said sincerely, realizing that these were, in fact, the first people he'd met in five or six years. He bowed again, and felt a smile creeping onto his face. "We'll talk later, if you like."

The relief on the men's faces was palpable. Bruno wondered what sort of doctors they were, that they so craved his attention.

"Er," said the crimson man.

"Thank you, very much," his wife said, smiling, touching his hand again to lead him away. The indigo man and yellow woman fell in behind them, strolling down a path between the junipers, past Tamra's guards. In a few moments, they were lost from sight.

"Ah, civilization," Bruno said.

Her Majesty grunted. "Wiseass."

Another figure materialized in the fax gate: a man. A smallish man in black and green, a shiny black hat cocked jauntily atop his head. It took Bruno a moment to recognize him as Marlon Sykes, prettied up for the ball, and still another moment to recognize the clothing ensemble as very nearly identical to his own. Perhaps suggested by the same piece of software?

Sykes, it seemed, made the connection more quickly, eyeing Bruno up and down and then glaring pointedly. Tamra, for her part, looked at the two of them and burst out laughing.

"Am I to be second in *all* things?" Sykes muttered.

Bruno, somewhat taken aback himself, could only stammer, "It ... why, it looks much better on you, Declarant." Which was true, but which mollified Sykes not at all.

"Damn you, de Towaji," Sykes said, then stepped backward and vanished.

Another batch of people filed through the fax gate, and in another moment Bruno felt his arm clasped again, Tamra's strong fingers pulling him away from still another such encounter, down the juniper path toward the party.

The robots, earlier so conspicuous in their duties, now seemed almost to sneak alongside them, quiet, holding to the walls and shadows. Ever vigilant, of course, their blank metal heads facing Her Majesty no matter how they moved, but now following a program of discretion, balancing etiquette against the need to protect. Or perhaps "protecting" Tamra's human interactions along with her skin.

A few turns and twists later, the glass arcade opened back into a sort of dining hall, a chamber cut back into the mountain. Or possibly a natural cavern of some sort; beneath a ceiling of white-glowing wellstone, the walls retained that same rough pastry look. At the back, a staircase rose up into rock and darkness. Five long tables filled the hall, eight seats to a side and one on each end, enough for a hundred people in all. Half these seats were filled already, and from the arcade's other side a steady stream of guests filed in. Had he and Tamra come in through some sort of VIP entrance? The crowd was certainly thicker over there, and while neither wealth nor status could be gauged from clothing, from their movements and muddled-together speech they seemed a slightly more raucous bunch. The brightly clad Martians were ahead, strolling along the nearest table, looking at place cards to find or confirm their seats.

Bruno and Tamra seemed to be right on time, at any rate. That was another thing about faxing: It left no sense of the minutes elapsed during transmission through the collapsiter grid. One could, in theory, specify longer-than-optimal packet routes, bouncing a signal to the outer planets and back as many times as desired, effectively transmitting oneself into the future. Why wait for the party, when you could—in effect—bring the party to you? But the cost was such that Bruno doubted many people had tried it; there were many easier ways to skip over dull time.

Presently, a little bald man detached himself from the crowd and strode briskly forward, arms outstretched, his attention fully on Tamra. In the corners of Bruno's vision, the robots tensed.

"Your Majesty," the man said, sounding delighted. His hands closed on hers, enfolding; he was bigger than he looked, taller in fact than the "Virgin Queen" herself. There was deception in the stoop of his

shoulders and the draping, nondescript grays and browns of his clothing. Deliberate deception? It seemed unlikely in such a grandfatherly figure.

"Declarant Krough," Tamra acknowledged pleasantly, lifting and inclining her hand for a ceremonial kiss.

Suddenly, the face clicked: Ernest Krough, inventor of the fax morbidity filter that had all but banished death from the Queendom. The first Declarant Tamra had ever named.

"I've seated you next to myself," Krough said, "if that's all right. Rhea is eager to speak with you about ... somethingorother. It escapes." He waved a hand absently.

"I've brought a guest," Tamra cautioned.

Krough nodded. "Thought you might. Saved a place. Backups in case, yes, but I thought." He turned to Bruno. "Son, you look familiar."

Son? Son? No one had called him that in decades. But then, few people affected such advanced decrepitude, as if the mechanics of biology weren't so rigorously mapped and filtered in fax transmissions after all. Krough had, of course, come by his decrepitude honestly, the old-fashioned way, but so had many others who'd long since abandoned it for the comfort and vitality of youth.

He supposed Krough was probably healthy in the ways that mattered, free of diseases and mechanical degenerations, his weathered exterior a kind of uniform or honor badge. Like height or muscle or decisive skin pigmentation, it did draw a kind of knee-jerk attention to itself. A kind of respect, he grudgingly supposed, though he'd rather respect the man's record and title, his taste in buildings, his obviously quite large number of friends.

"De Towaji," he said finally, thrusting out a hand to be shaken. "Bruno."

"Declarant," Her Majesty chimed in.

"Oh! Right!" Krough exclaimed, grabbing the hand and pumping it enthusiastically. "Collapsium, yes! Still alive, then? Outstanding. Haven't heard much of you. Bit of a recluse, yes?"

Bruno shrugged. "My work demands isolation."

"I dare say it does," Krough laughed. "Crushing matter into nothingness. None for me, thanks! God's own space-time is agreeable enough. Not that there's anything wrong, of course, with a tweak here and there. Mustn't grow complacent. Kiss of death for an immorbid society, I'd say."

"Uh," Bruno said, then realized he had no response. Bit of a recluse, yes, no longer able to hold up his end of a conversation. Blast.

"Well, do come in," Krough urged them both, not seeming to notice Bruno's discomfiture. "Follow me, follow me. The table is right over here. Rhea, darling, I've brought visitors! Now Bruno, this thing about the Ring Collapsiter. Falling into the sun, they tell me. Not very desirable, that."

"Certainly not."

"You're on it, I hazard? Fixing it up for us?"

Bruno, feeling bothered, could only shrug again. Then he identified the source of his botherment: He felt like a child, like a bright little boy in the company of an adult. Not that he was being treated as one, particularly, but that clearly was the social role he must play here, if he were to play any role at all. What a thought! He, the gray, brooding prophet! There was the problem with putting on airs: Other people were free to ignore them.

Well, blast. So be it. Served him right, probably.

"I've looked," he said to Krough, nodding. "I'm thinking the problem over, but really I've only just arrived. And since Her Majesty insisted I join her for dinner ..."

Krough smiled knowingly, reached out an arm, and for a moment Bruno feared his mad prophet's hair might be given a good-natured tousling. But no, the arm was merely gesturing, pointing out the seats marked LUTUI TAMRA and LUTUI GUEST. *So many utensils*, Bruno noted with an inward groan. A few seats down was a place marked SYKES MARLON, which, presently, was occupied by the frowning Declarant-Philander himself, now swathed head-to-toe in white, a cap and smock and jacket and breeches which, if anything, suited him better than the previous ensemble had done. Pulling out his chair, he cast a smoldering look in Bruno's direction, then softened it a little and nodded in simple acknowledgment, one peer to another.

In another moment Tamra seated herself, and with that the crowd seemed to shift, change phase, its members drawn down into their chairs over a period of seconds like kites dropping out of a suddenly windless sky. Not unusual, Bruno recalled; people tended to keep half an eye on the Queen at times like these, and to draw their cues from her. But still it was strange, a thing half-forgotten in his years away.

Soon Krough alone remained standing, whereupon he lifted a metal cup from the table, raised it to eye level, and brought a hush down over all.

Bruno found his eyes drifting toward the back of the chamber again, surveying the rough staircase there. Where did it lead? Outside? To the surface of Venus itself?

"Ladies and gentlemen," Krough said quietly, his voice echoing from the pastry walls, "Welcome to our planet—a work in progress, I'm afraid—and thank you all for coming. There will be time to continue mingling after dinner; I'll have to ask you not to do it during. Rhea's gone to quite a bit of trouble about the seating, you understand, and she won't see her efforts undone. Now, we have some very special guests tonight, whom I'll ask you not to pester. This is a fundraiser after all, and any pestering is to be done by Rhea exclusively." There was polite laughter all around, which seemed to surprise Krough a little. He looked around sheepishly. "Er. If you *are* a special guest, do come and talk to her before you leave. Or an ordinary guest, for that matter; I'm sure she's dying to speak with you all."

"Pish, there are no ordinary guests here!" the woman at Krough's side called out. Like him, she'd chosen an appearance of physical maturity, and though it was nowhere near as advanced as his, her red dress and rouge and lipstick and eyeliner did clearly emphasize the pallor of her skin. That is, if "pallor" could describe the graying and weathering of a face so darkly brown.

Again, polite laughter filled the chamber. Again, Krough seemed good-naturedly put off by it. He looked as though he had more to say, but after pausing a moment, he finally shrugged and sat down again. A few diners clapped uncertainly.

"Oh, well done, Cyrano," The woman—Rhea—teased him, amusement winking in her eyes. "Such an orator, such an inspirer of men. How our coffers will swell tonight."

"As you say, darling."

Both faces turned politely toward Tamra then, and waited.

Smiling, Her Majesty delicately lifted a fork, at which signal plates of brightly colored salad rose up from the solid wellwood of the tables, one to a diner.

"Let us eat," she said in one breath, as if by rote.

Bruno, still unsure of his etiquette, waited for others to dig in before doing so himself. When he did, though, he found the salad excellent, every bit as crisp and succulent as anything he'd grown himself, and clothed in a quite zingy dressing he couldn't identify.

"Very good," he remarked around a mouthful of it, which technically was a social error but which seemed to please Rhea Krough well enough. The beverage, too, was striking; when Bruno had last dined among the civilized, fashion had favored mood-enhancers of excruciating subtlety, perfumed drugs that elicited a temporary bliss or ardor or thoughtfulness and then erased their own tracks, suppressing the users' desire for more until some seemly interval had passed. But his metal cup, when he touched it, filled with a foamy amber fluid that smelled like—and was—ordinary beer. Beer! He nearly choked on it in his surprise.

"It's only the default, son." Rhea explained, seeing his reaction. "Whisper the name of any drink you'd prefer, and the cup will change it. Water to wine, the full menu."

"No, no," Bruno said, mastering himself. "It's quite good. A quaint, clever touch. I haven't drunk beer in ... well, decades, I suppose. It's good to taste it again."

"A little hoppier, perhaps? A touch of the bitter?"

"No," he insisted. "This is fine. Really."

Rhea Krough beamed for a moment, then looked thoughtful for

another moment, then shook a finger at him admonishingly. "You are, you're Bruno de Towaji, aren't you. Shame on you, not telling me; I suppose I've gone on like a fool."

"You've barely spoken, madam."

"Oh, you."

Her Majesty cleared her throat and smiled. "Bruno is here at my behest. Doing some work for us, some consultation."

Her words echoed a little; this end of the table had gone silent, all eyes on Bruno, all faces surprised or expectant or hopeful. Even Marlon Sykes was looking at him with some grudging cousin of admiration.

"Sir!" someone exclaimed. "Declarant, you've come to save the Ring Collapsiter?" "To save us *from* the Ring Collapsiter?" another demanded. And *their* words echoed; the ring of silence was spreading.

Suddenly, the air around Bruno and Tamra was filled with buzzing, swooping cameras.

"Your Majesty!" one of them called out in a tiny but amplified voice. "How long has de Towaji been with us?"

"Is he collecting a fee?" another asked.

And then: "Philander, have you resumed sexual relations with the Queen?"

BRUNO HAD BEEN DRINKING, HIDING behind his cup really, but at this he gasped and spluttered, remembering too late the crassness of civilization, ever the counterpoint to its huge, brittle lexicon of manners. Sexual relations? With the Queen? As if the old title of Philander made this, somehow, a matter for public discussion?

"You dare," Tamra said warningly to the camera, to all the cameras. Instantly, hairlines of sharp blue light connected the buzzing faux-insect to the pointing fingers of Tamra's robots, who suddenly were no longer unobtrusive, no longer standing politely among the shadows.

"Reportant Clive W. Swenger," they said together in quick robot voices. "*Luna Daily Tabloid.* Teleoperating from this building, although the camera pings, fraudulently, as an autonomous agent billing to Universal Press."

"Eighty-thousand-dollar fine," Tamra said, eyeing the camera coldly. Her gaze swept the other buzzing insects. "Cordon is set at two hundred meters, effective immediately."

The blue beams vanished and, as if pushed by invisible turbulence, the cameras fled wildly toward the exit; the dining chamber was barely 70 meters across, much too small for them to obey the cordon and remain inside. Her Majesty's word wasn't law, exactly, but as the strong recommendation of law it carried considerable weight and consequence. No doubt Clive W. Swenger would pay his steep noncompulsory fine rather than explore the quite dismal consequences of challenging or—God help him—ignoring it. And the other reporters and their robotic agents would obey the cordon almost as if their lives depended on it. Almost.

"Now, the rest of you," Ernest Krough said dryly, to the many human faces still staring, "back to what you were doing, right? No bothering the other guests; that's our agreement."

Bruno, wishing he could slip through the floor, shot him a grateful look. Then, because he had to say something about something other than himself, he said, perhaps too quickly, "Tell me, Declarant: How did you come to invent immortality?"

"Eh?" Krough turned fully toward Bruno, blinking. "Immortality? Immorbidity, you mean."

Bruno waited.

"How did I?" Krough repeated, as if the question were a strange one. "Yes, well, there were lots of people working on it, of course. Evolutionary, not revolutionary; once you had the fax able to reproduce whole people, it was rather an obvious notion to fix them up in the process. I say obvious, but of course I wasn't in on the early stages of the process. Standing on the shoulders of giants, as they say, one gets a better view than the giants themselves have got. No, it wasn't until little Ania was born that I really became concerned. She was my daughter, you see. I was in pharmaceuticals until then; waste of time, but I suppose I had it to waste, didn't I?

"Anyway yes, when Ania was born and I held her, brown and perfect, in my two hands, I burst out crying because I realized death was going to take her someday. Really crying, I mean; it needed sedation to quiet me up. Because she'd grow old and wrinkly, you see, and fill up with pain until it extinguished her, and it just ... seemed intolerable. Shouldn't it? I mean, even a *diamond* is forever, and a diamond can't grip your finger.

"So I switched professions, right there and then, and I dare say it was the proper course. Very nearly lost the race, too, not so much with my colleagues as with the Reaper himself. Got rather wrinkly myself, before I was through."

"But you didn't lose," Tamra said.

"No. No, I didn't. Our backers were ... very generous."

"So, what are you raising funds for this time?" Bruno asked.

Krough's eyebrows went up. "Why, for Venus, of course. Can't change a whole planet so easily; not on what I make, at any rate."

"So much the better," said a sharp, reedy voice from farther up the table.

"Oh, do hush, Rodenbeck," Rhea admonished, not entirely unkindly.

"While you murder the planet, right," the man called Rodenbeck complained in roughly the same tone.

"By bringing it to life?" Rhea waved a hand, dismissively. "Really, Protestant, you're better off whining about the Ring Collapsiter. People listen, then. But as you've been instructed not to disturb de Towaji this evening ..."

Krough laughed at that, and explained to Bruno, "Wenders Rodenbeck is one of your greatest detractors. A rising star among them, one might say."

"Ah," Bruno said, remembering the Flatspace movement, its beginnings almost immediately after the invention of collapsium. Dangerous stuff, they'd insisted. Too dangerous for the inner solar system. Even excluding the fate of the Ring Collapsiter, it was a difficult argument to refute. But then, fire was dangerous, too. He examined Rodenbeck: red-haired, freckled, with the sort of face that would age slowly under even the worst of conditions. But not a child, no, not a fop or a fool.

"A detractor of mine as well," Krough said, laughing again. "Generally, people find purity in the *cold* places. A tundra, a permafrost, an ice cap: hands off, thank you. Rodenbeck is unusual in finding scorched rock as pristine and beautiful as a new blanket of snow. I've promised to leave the clouds, no changes, nothing you'd pick up from a distance. Venus remains the Evening Star, bright, featureless, all our work hidden safely beneath, but it's no use. We're to leave it altogether alone, according to this one. Not that many agree with him."

"More," Rodenbeck said, "since Maxwell Montes started protruding above the cloudtops. In spite of your promises."

"Oh, hush," Rhea repeated.

Surprisingly, Rodenbeck grinned at that, saying, "Our hosts have invited me to provide the *appearance* of balanced debate. Pardon my ... overstepping the assignment. As you were, Declarants."

Bruno found himself liking this man, this greatest of his detractors. But liking the Kroughs as well, choosing not to take sides against them. Not now, at any rate. Following their lead, he returned to his meal, quickly finishing off the salad. His mug, which he thought he'd drained, stood full again at his elbow. He lifted it and took another long draught, savoring the flavors.

"How much do you need, exactly?" he asked when a pleasantly quiet minute or two had gone by.

"How much don't we?" Krough laughed.

The next course arrived: meatballs with tough, bready centers. Again, Bruno drank deeply from his mug, this time watching it refill when he set it down. Pulling matter through the tabletop from a reservoir somewhere, the same place the food and dishes came from, and went to when the diners were through with them. Bottomless, a veritable miracle of loaves and fishes. One felt no urge to hoard, to pace or measure one's consumption.

With a start, he realized that Rhea Krough was engaged in the old-fashioned and quite roguish practice of getting her dinner guests drunk. To soften them up for solicitation? Was he to have known this? To prepare, to steel himself?

"You're drunking me," he snapped at her suddenly. "Er, well. That is, I fear I am drinking too much. Too quickly, that is. I'm unaccustomed ..." his voice trailed away uncertainly, a strange feeling tickling in his chest. And then a massive belch escaped him, silencing all conversation once again.

"I warned you," Rhea said to him, with perfect innocence. "Whisper the name of any beverage. Ask for the intoxicants to be removed, the carbonation, whatever your preference." Then her face took on a look of weathered, knowing sympathy. "Oh, but this is new to you. Sequestered on your little planet, so far away. When was your last dinner party? Of course, of course, the fault is entirely mine."

Beside him, Tamra sighed. "The fault is no such thing, Doctor. I apologize for bringing him here, with so little warning to himself or to you. He *is* unaccustomed, although for that he has only himself to blame. But these disruptions are my fault."

"Stop," Bruno growled at her. The room swam a little; he felt its heat in steamy waves. The alcohol was finding its way into his bloodstream, his brain. Bother, how many decades since he'd been *drunk*? "Stop it, Tamra, please. I'm not a child, or a fool. I response ... that is, I take responsibility for myself. This woman—" he shook a finger at Rhea "—wants money. She plies for it, cleverly. She deserves, she *earns*."

Tamra reddened. "Bruno!"

"It's all right," Rhea insisted, her good humor fading now into genuine concern. "He's perceptive, and I fear I've treated him poorly. A mug of Prudence should help, or a trip through the fax."

"Nonsense," Bruno said, more loudly than he'd intended. "No. I've drunk it, I'll keep it down. Serve me right. I'll be sober soon enough. And I *do* have money. For your project. Just ..." he glanced over at Wenders Rodenbeck. "Just leave the clouds alone, all right?"

He paused, scratched his ear, did some muzzy calculations in his head. "Would, ah, would a hundred trillion dollars be enough?"

A UNIVERSAL GASP WENT UP, FROM THE Kroughs, from Rodenbeck, from Marlon Sykes and Tamra Lutui and a hundred painted lords and ladies. All eyes were on him again, and he knew at once that he'd erred, that all his careful efforts to treat these people as friends or equals or superiors had just been dashed to flinders.

Peerless. That was his curse, yes, the curse of isolation, of knowing that no other human commanded even a tiny fraction of the resources at his disposal. Even Krough, who had changed the worlds forever, reaped only a tiny royalty when someone faxed him- or herself across space and time, the morbidity filter one of many background processes running behind every collapsiter grid transaction. Whereas Bruno, who had built the grid, earned a *large* royalty, too large, more than he'd ever asked for or wanted. Tamra's lawyers had set the whole thing up, and in the end even they were stunned at what they'd wrought: a fortune dwarfing Tamra's own, growing faster than anything the worlds had ever seen or contemplated. So large that even *giving* the stuff away was an exercise fraught with peril.

Because he, albeit unwittingly, had *really* changed the worlds. Because he, albeit unwittingly, had won the power to break spirits with an ill-chosen word, to show people just how small and futile their life's works had been.

"Too much," he said, looking around him morosely. "I'm ... sorry, I didn't intend any ... offense."

And then he dropped his head and vomited into the enormous metal cup, where his bile changed at once to fresh, foaming beer.

5. In Which a Great Mountain Is Climbed

THE WORST PART ABOUT THE EVENING WAS THAT THAT WASN'T THE worst part. With taut aristocratic deference and diplomacy, no one present gave any sign of noticing his lapse, not the tiniest quivering of disgust or sympathy. It was a nonevent, shunned, disacknowledged for its impropriety. This simply wasn't a barf-in-your-mug sort of gathering, and when he'd asked to be excused on grounds of fatigue, Her Majesty had smiled thinly and suggested a hot tonic. Having no other cup to drink it from, he'd naturally demurred, and wound up sitting out the hour in queasy mortification and almost total silence, while his head grew muzzier and then began, slowly, to clear.

The astronomer Tycho Brahe, he recalled, had died of a burst bladder at a dinner like this one, that being much politer than barbarically excusing himself to go pee. Perhaps Bruno should do *that* in his cup was well, just to see if a head would turn or an eyebrow quirk somewhere in the room, but he'd noticed the lavatory door at the back of the chamber and went there instead, not bothering to ask permission like a child but simply standing, saying he'd be right back, and lurching off.

On his way back he passed the gloomy staircase, glancing up its length curiously. The passage was steep and curved away to the right. Reflecting from the pastry walls was the same twilight glow as the sky outside the gallery windows. A conservative sky, he thought, all but unchanging; Venus took thousands of hours to complete a rotation, its sidereal day actually slightly longer than its year. The sun followed it around like a child running alongside a merry-go-round, falling slowly behind but remaining stubbornly in view while the trees and stars whirled beyond. This gloomy evening would probably last another four or five standard days, possibly longer.

"Will you be staying long?" someone asked him, a while after he'd returned to his seat. In reply, he simply shrugged and looked to Tamra, and paid little attention to her answer.

In his absence, dessert had arrived: a light berry sorbet that looked as if it might ease his stomach a bit. He tried it; it did.

"Are you reachable by network again, Declarant?"

Again, he shrugged. So long as he remained in civilization, even with no fixed address, a message directed to him would eventually find its way. But why encourage the practice? Why rub these rotted social graces against the fabric of society any more than necessary? Surely society deserved better. He mumbled some reply, then leaned in and finished his dessert.

"Declarant," Wenders Rodenbeck finally said to him, as part of some larger conversation, "How *are* we to fix the Ring Collapsiter?"

He looked up. "Eh?"

Ernest Krough clucked in distress. "No, no, Wenders. Mustn't harass. Haven't I mentioned? Leave the guests alone, all that?"

"It's all right," Bruno said, perking up. "Really." It was, in fact, the most interesting subject he could think of. To Rodenbeck he said, "You know something about collapsium?"

A nod. "Enough."

Bruno snorted. "Enough? Enough for what? I don't know enough, and I'm allegedly the Queen's expert. I've been trying to work out the equilibrium of the thing; never mind the dynamics, what keeps it even *statically* stable? The lattice points are all rigidly in phase, of course; that's what we mean when we speak of collapsium. And imagining the structure as linear, as a long rectangular prism, it's all very straightforward. But in twisting it around to a ring, a toroid, we have to worry about crosswise forces, every part of the structure exerting strange diagonal influences on every other part. It should throw the whole thing out of phase; a collapson swarm, chaotic and perilous and in no way useful as a telecom shunt.

"So what do we do? Adjust the ring size so that every node is an even wavelength away from every other? No, that wouldn't work, would it; there's no such size, the set is empty. You'd have to fiddle

with the lattice rows, too, not so much circular rings as huge, frilly doilies of collapsium. Dimensionality, what, at least one-point-two. Would that *work*?"

"One-point-two-nine," said Marlon Sykes, a stunned look on his face, "and yes, it does. Declarant, did you just work that out? In your head? Just now?"

"I'm only guessing."

"Very intelligently," Sykes insisted, all trace of rancor gone from his voice. "Do you know how long it took me to work out the same scheme? With Her Majesty's finest computers at my disposal?"

Bruno grunted, unwilling to acknowledge the point. Then: "I don't recall seeing these ... crenelations from your work platform."

"No, you probably wouldn't, that close. And on the inside! Better, I suppose, to see the ring from afar, preferably a little out of the ecliptic plane."

"Venus is two degrees out of the ecliptic, isn't it? Can we see the ring from here?"

Sykes shrugged at that, so Bruno turned to Ernest Krough, who said, "Expect you could, this time of year. Sun's just set and all. Parts of the ring still above the horizon, yes, another couple of weeks at least. Yes. But you're out of luck, I'm afraid; we've no fax gates on the other side of Cleopatra, which is where you'd see it."

"Cleopatra?"

"The mountain."

"I thought the mountain was Maxwell."

Krough squinched his lips up and shook his head. "On the continent of Ishtar, Maxwell is a prominence the size of Britain. Buckled plates, you see, very nearly a continent's continent. Cleopatra is the highest of the peaks which crown her. It's where the house is, you understand, on the north face. A poor decision in retrospect: gets cold at night, these days."

Bruno, with a tingling of excitement, waved a hand at the staircase at the back of the room. "What about that? Where does it go? To the surface?"

"The rock face, you mean," Krough corrected uncertainly. "Stairs go all the way to the summit, lad, but it's a steep climb. Over a kilometer."

"Pish," Bruno said, feeling his blood rising, feeling the strength in his limbs like a reservoir waiting to be tapped. "We're young, aren't we? Children. If we're to live forever, shall we have nothing to look back on but the hills we declined to conquer? I, at least, shall climb."

"The air is ... unsuitable," Krough objected. "Smoggy, smelly, impure. Carbon dioxide of course, still more than we'd prefer, and residual traces of sulfuric acid. Not to mention all the intermediate hydrocarbons ..."

"It's breathable?"

"Well, yes, but—"

"Then I, at least, shall climb. Marlon? May I have the privilege of your company?"

Marlon nodded once. "An honor, Declarant."

Krough squirmed in his seat. "I am responsible—"

"Nonsense," Bruno said. "*I* am responsible. I absolve you of any liability for myself."

"But you can't—" Krough stammered.

Her Majesty stood, eyeing Bruno and Sykes and Krough himself in turn. "No, legally he can't absolve you. I, however, can. Pray, let de Towaji do as he pleases; the responsibility is mine. Bruno, for our hosts' sake I'll need to keep a close eye on you."

Bruno felt a wry grin creep onto his face. "In that dress, Majesty? I doubt—"

"Pants," Her Majesty whispered, apparently into her right shoulder strap. The dress pulled in around her, sliding, tucking, forming a crease between her legs that unzipped into two separate sleeves of material, one enclosing each leg. In moments, the dress had become a kind of coverall or jumpsuit. The odd thing was that the general cut and style of it had barely changed.

"Oh," said Bruno. Neat trick. He wondered what his own clothing might turn into, if he accidentally whispered the wrong word. A cloak, a dress? A settling cloud of feathers?

Ernest Krough cleared his throat. "Yes, well. If you insist. The way is clear enough, I should hazard. No need to be shown. Do let me accompany you, though. As host."

"Let *us*," Rhea corrected.

At the table across from them, the four bright Martians broke a huddle and rose to their feet. "Declarant," said the indigo man, "May we accompany you as well?"

"And I?" said another voice, elsewhere in the banquet hall.

"And we?"

"Myself? Yes?"

Soon the voices were everywhere, and Bruno realized he was yet again the center of attention, something he had never sought to be—had in fact fought not to be. Rather than answer the many voices, Bruno stood and waved his hands dismissively. Yes, yes, do as you wish; my permission is hardly required. Sliding his chair back, he turned and made for the staircase with long, purposeful strides. Marlon Sykes fell in half a step behind him, Her Majesty and her robots half a step behind that, and behind her came the Kroughs and Wenders Rodenbeck, and behind them were sounds of a rising crowd as Bruno mounted the stairs and began to climb.

Around the passage's first lazy curve there came another, sharper one in the opposite direction, and beyond that lay a thick sheet of curved glass that was part wall, part ceiling. Behind it the mountain shot up in a fist of blunt rock, the little staircase winding up it like a varicose vein, lit with periodic circles of soft wellstone light. Not jagged on the outside, this mountain, this Cleopatra Peak on the crown of Maxwell Montes. No: Eons of hot, thick, corrosive wind had swept past here like ocean currents, inexorable, smoothing every contour. Actually polishing in places, so that the rock shone almost wetly in the twilight. What Cleopatra looked like, more than anything, was a cheap computer graphic, a platonic ideal of mountainness. Or perhaps a tall scoop of chocolate ice cream, just beginning to slump in summer's heat. Here and there, patches of blue and green and butterscotch lichen interrupted the smooth gray-browns of windswept basalt.

"Door," Bruno said to the glass, and obligingly, it opened for him, a rectangle of wellwood appearing in the glass and swinging upward on creaky, faux-iron hinges. The wind swirled in at once, whistling, much thinner and less cold than he'd been expecting. He stepped through.

Beside him, Marlon Sykes noted, "You know, I'm not sure that actually seeing the fractal structure of the collapsiter will help you, particularly. You seem to have worked out the crucial insight already."

"Yes? Well, we shall see." He drew a deep breath, sampling, releasing it with the hint of a cough. Ernest Krough had not exaggerated the air's impurity—it tickled the lungs, filled them without wholly satisfying them. It reeked faintly but distinctly of sulfur. It was dry and cool and seemed to suck the moisture right out of him. It was, he thought, good enough for a mere kilometer's hike.

"Can you breathe?" he asked Marlon.

Inhaling deeply, the Declarant nodded. "Adequately, yes."

"Majesty?"

Tamra sniffed, wrinkled her nose, then finally nodded. "It will do, yes."

There were others behind her, dozens of others, but he felt no need to interrogate each of them. Whatever Tamra might say, people were responsible primarily to and for themselves, and if the air displeased them they could, obviously, go back downstairs and finish their dessert.

Bruno pointed with his shoulder. "Upward, then!"

The climb commenced.

The stairs were less smooth than the rock face around them. Rough, perhaps deliberately so. Traction wasn't a problem, although with the latest clothing a sheet of smooth glass might have served nearly as well, boot soles finding and clinging to the tiniest bumps and ridges, or holding fast with suckered tentacles where no such imperfections presented. The climb was steep, though, and there was no banister, just the edges of the stairwell groove itself, wobbling up and down from ankle to shoulder height and back again as it passed

through the tallowy features of the rock face. Above, the stars winked and glittered through post-sunset haze and burnt-orange smog, glittered in precisely the way they never had on Bruno's tiny planet, with its too-low, too-thin atmosphere.

"Invigorating," he said, relishing the feeling of being truly *outdoors*, on a real planet, for the first time in years. The cool wind alone was a new, freshly *real* sensation as it puffed through his beard, pulled his hair aside in streamers, fluttered at the brim of his hat.

"Yeah, whatever," Marlon muttered beside him. Tamra grunted something unintelligible in a similar tone as her guards clanked along beside her.

The first hundred meters seemed trivial enough, and the second hundred, but halfway through the third he heard Tamra's voice well behind him, and turned to see her dropping wearily, setting one buttock down on the edge of a tall stair. She looked at him half-plaintively, half-commandingly.

"Keep climbing like that, you're going to send someone home in a cast," she said.

He grunted, with mingled amusement and annoyance. Rolling injured limbs in foamed plastic was pure hyperbole; nobody treated fractures that way anymore. Why bother, when the injured party could simply be hurled into the nearest fax, murdered, disassembled, and replaced with a perfect—and perfectly healed—duplicate who'd thank you for the service? But as a figure of speech, Bruno grasped it implicitly: He was somehow in charge of this expedition, somehow responsible for all who followed behind him, and he was failing to take proper care. Everyone was healthy these days, well muscled and aerobically fit. Faxware saw to that. But that wasn't quite the same, he reflected, as actual exercise, which after all got one used to a certain amount of hardship and strain. He supposed all those walks around the world had done some good after all.

Beside him, Marlon appeared hale enough, if a bit flushed and pink against the white of his jacket. But he saw that Rodenbeck and the Kroughs had overtaken Tamra, and behind her along the snaking stairway were strewn what must surely be the party's entire guest list, in varying stages of fatigue. Some looked fit, eager, though reluctant to crowd past the Queen on her resting stair, or the halberd-bearing robots looming on the steps immediately above and below. Others, further back, climbed more slowly and deliberately, and behind them lay a great many who slogged with great heaviness, as if their feet were shod with iron, as if the Earthlike gravity of Venus were far more than they were accustomed to. But also as if this climb were a matter of strange importance to them, an historic event in which they were determined to take part. The news cameras, he saw, had also returned, zipping and buzzing around the invisible, two hundred-meter cordon.

He could almost hear the voices echoing back from some distant future: "I was there on Cleopatra, when de Towaji climbed it to examine the Ring Collapsiter. You've seen recorded images, maybe saw it live on the network, but I was actually *there*." The notion bothered Bruno for several reasons: first because it underscored this fame, this unseemly *significance* that dogged him always, whatever he did; and second because it presumed, axiomatically, that there was a future to look back from. That he would, in other words, fix the Ring Collapsiter, single-handedly saving the Queendom from its otherwise certain doom. What basis did they have for such an assumption? What right did they have to demand it of him, if not of themselves?

He wondered how eager and solicitous their faces would be if the blasted thing fell in. Plenty of time to worry, no doubt; the collapsium's lattice holes would widen slowly at first, gobbling solar protons only occasionally, later perhaps a few neutrons. They'd play hell with the Sun in the meantime, of course, ejecting flares, wreaking massive disturbances, creating localized zones of greatly increased density as solar matter crowded in around the holes but was not immediately swallowed. Pockets of neutronium kicking around inside the convection zones? Settling in toward the core and then pulling the core in after them? Eventually, no doubt. Eventually.

"Marlon," he said, "how long between chromopause penetration and total solar collapse?"

"Four months," Sykes puffed without hesitation.

"Hmm." Bruno placed his chin in his hand, thoughtfully, wishing again for a less distracting environment. He didn't want to lead his fellow men or absorb their admiration; he just wanted another look at the Ring Collapsiter, and some quiet time to think. To Tamra he said, "We're only a quarter of the way up, you know."

"I'll make it," she replied. "But I think a lot of us need to catch our breath."

Looking down at the crowd behind her, he nearly said, "I didn't ask them to come." But he didn't like the way that might sound on later repetition, so instead he raised his voice and called out, "We'll rest for a few minutes, and then proceed more slowly."

He watched the faces react to that, all the faces and bodies spilling out below him like the followers of some wise, all-knowing Moses. A mad prophet, yes, late of the wilderness; he should have let the ladies trim and color his hair after all. Grumpily, he sat.

A snowflake lit beside him on the stone, failed to melt, and was whisked away again by the sighing wind. Strange, the rock didn't feel that cold beneath his hands; the snow should have melted. In a sheltered corner, he spied a little pile of it, gathered there like dust. He stretched a hand out to touch it, found it dry and somewhat sharp. Not quite like coarse sand or tiny glass shards, but similar in some way to each.

"This isn't snow," he said, surprised, pinching a bit between his fingers and dropping it into his palm for examination.

"Snow?" asked Ernest Krough, eight steps below him.

"It's wellstone flake," Rodenbeck called up, from two steps farther down. "Also known as terraform ash. It sprouts reactive ions to strip unwanted chemicals from the air, then settles out, changes composition, and sloughs the impurities off as solids to join the lithosphere. Then the wind carries it up again, and it starts all over. There are equivalent devices freeing oxygen and nitrogen from the rocks; it's precisely the antagonist of nature: the geochemical cycle running in reverse."

"Only much quicker," Krough added, with a trace of smugness.

Bruno peered at the little crystals, so much like snowflakes. The design made immediate sense: maximum surface area for a given mass, to increase reaction space, to maximize the chemistry a single flake could perform. How many were needed to change a whole planet? What fraction were really lifted into the sky again, after settling to earth? He imagined dunes of the stuff piling up here and there, strange geological strata for future generations to ponder. An immortal society could afford to be patient, but still it was no wonder this enterprise was short of cash. A small enterprise, yes, compared with shipping neutronium all the way up to the Oort cloud. But that didn't make it easy, or cheap.

"We could just *live* with nature," Rodenbeck said, in weary, futile rebuttal. "Attacking it isn't compulsory. You're the worst sort of real-estate developer, you know, a sanctimonious one."

Krough laughed. "Son, when *you* buy a planet, I promise to let you care for it as you choose. No one will dream of stopping you. But the shareholders of Venus have voted, almost unanimously, to alter it. Most of us live here after all, or plan to, and while we don't desire a second Earth, we do at least hope for homesteads that won't rust and implode the moment we erect them. You know very little of our hardships here."

"Yeah, yeah, poor baby. Moved to the furnace, and cried because it was hot."

"Hush, you two," said Rhea Krough, with a sort of long-suffering amusement.

Other conversations drifted upward, along with some coughs and wheezes.

"If you're having trouble breathing," Rhea called down, "do please go back inside. Her Majesty can't take responsibility for the way *I'd* feel if anything happened."

No one took her up on the offer.

"At the very least, go fax yourself an oxygen tank and some filters."

A few responded to that, turning around the way they had come, their steps a little lighter in descent. Bruno let a few more minutes go by, giving them every chance, before rising to his feet once more

and resuming the climb, at a much-reduced pace and with many backward glances.

Leadership, iconhood, bah. Was it so wrong, simply wanting to do his work? Was that so grave a trespass on the rights of humanity? Humanity certainly seemed to think so. Could everyone be wrong but himself? Was that a reasonable thought to entertain? They trusted his opinion with regard to collapsium, after all—why not with regard to himself? Perhaps, after all, they knew something he didn't. Or perhaps, as with the collapsiter grid, their need simply outweighed any cautions or caveats, outweighed Bruno's own desires. The good of the many demands the sacrifice of the able, yes?

The worst of it was that he had no role models, no historical personages from whom to draw example. Wealthy, strong, well connected to the seats of power; there'd been many like that, some of them even philosophers and inventors, the declarant-equivalents of their respective eras. But none of them immortal, none forced to live *eternally* with the consequences of their actions. How paralyzing would they have found it, the eyes of history always on them, not for the sake of posterity but for ongoing and literally ceaseless dissection? Knowing that their adolescent bumblings would look ridiculous even to their future selves, and worse, that such adolescence would never end?

PERHAPS SOME COULD HAVE MANAGED it. Perhaps some would manage it in the far future, with Bruno's failed example to look back on. But that didn't help him now, didn't show him how to be this flawless Philosopher-Saint of society's expectation.

Bah. Bah! Better to worry about the collapsium, about the physics underlying it, and the universe underlying that, and the *arc de fin* that might somehow make sense of it all. *That* should be his historical role! That!

But his opinion mattered little; tonight he was a mountain guide, leading idle stargazers to their latest amusement. Well, not *amusement*, not that. Their lives did hinge on the fate of the Ring Collapsiter, after all. And they didn't know how to fix it, and they thought perhaps he did; they were therefore understandably eager for his answer. So perhaps there was nothing strange about any of this, no reason for his ire or discomfort. Had he been harsh, foolish? Probably, yes.

So his thoughts had come full circle, and every time someone coughed or stumbled or demanded a rest on that long, slow climb, the circle began anew, starting and ending in the same places like a stuck recording. Belying the myth that Bruno's mind was extraordinary, somehow elevated above the norm. Bruno's mind was, in point of fact, messier than his living room, crowded with lusts and irrationalities and stuck recordings beyond number. It was a wonder he accomplished anything at all.

But he engaged Marlon Sykes in sporadic conversation, when certain nonuseless thoughts occurred to him. He looked up and down, as the mountain slowly grew beneath them and shrank above. He tugged his beard, pinched his chin, even fretted periodically about the Ring Collapsiter's fall, and how it might be averted. F=ma, obviously, and by corollary: $F=ea/c^2$. Did that help? If so, it wasn't apparent.

Finally, the summit approached, the sky widening above and below them. It was unsettling, the way the sky never changed. The hazes drifted slowly in the jet stream, yes, but the post-sunset colors that lit them refused to deepen, to lose the last hints of red, to fade to blue and darkness. The stars refused to really come out. There was no moon, and beneath the gloomy cloud deck below them, it was easy to imagine nothingness: Venus a planet of pure sky with no solid surface at all. Except this mountain, rising up like a pillar from the depths.

The staircase widened at the last, doubling and tripling its breadth before opening, finally, to a flattened, roughly circular depression at Cleopatra's summit, some 30 meters across. The rock into which it was sunk formed a waist-high wall all around, broken by sheets into rough-smooth pastry layers. To the southwest, the twilight was brighter; Bruno hurried in that direction, crowding up against the wall, looking out toward the Sun, hidden by miles of cloud and miles more of rock.

And there, standing nearly vertical in the sunset glow, was the Ring Collapsiter, barely visible as a filament of blue-green Cerenkov light, not quite a line but the peak of an arch, two very fine lines rising together to join at the top. Like the stars themselves, too small and distant to see as objects; this was a sort of stretched pinpoint, a brightness without dimension. But not without structure—Marlon's promised crenelations were quite apparent, though subtle, little scallopy waves in the smoothness of the ring, and smaller waves scalloping those, placing each of the structure's millions of collapsons into one of gravity's infinitely many vibrational nodes. Making it a stable, eternal structure. In theory.

Again, he was struck by the beauty of the thing, by the sheer elegance of function cast into form. Would future generations perceive its marvel, its grace? Would it slide into mundanity, one more work of engineering fading into civilization's background, like cabling and sewer pipes? The very thought made him angry.

And then it struck him: He was doing it too, presuming a future for this thing, for the people whose lives it threatened. He, too, presumed unconsciously that this problem would be solved. And that was interesting, because he'd never presumed, for example, that the Earth could be towed to a warmer orbit to thaw its frozen regions, or that wellstone iron could magically change to atomic iron, or that one fine day, people would all cease being rotten to each other. Bruno prided himself on a good sense of which problems were and weren't tractable, and this one—the fall of the Ring Collapsiter—apparently passed the test.

So what did his subconscious know that he himself did not? What had it been doing while he was off barfing into cups and whatnot?

"There it is," said Marlon Sykes, pointing vaguely. "In all its glory. You can even see Her Majesty's superreflectors, little white dots all around."

Bruno peered, squinted, and decided Marlon was right. The pinpoints were *faint*, much fainter than the collapsium itself. They were yellow-white, like sunlight, and they hovered outside the ring at various distances, sunlight pushing them away as fast as they could be lowered into place. In fact, a few of the more distant dots were moving with just barely perceptible speed.

"Hmm," Bruno agreed. "Yes. Interesting. How big are the sheets?"

"Not large. A hundred meters."

"Hmm," Bruno said again, nodding slowly and pinching his chin. "Enough to wrap around the torus, like tape around the rim of a steering wheel. Goodness, if the ring were solid, we'd have no problem, would we?"

And then the world stopped. He drew a slow, reeking breath, filling his lungs, and then released it slowly, loudly, an extended sigh. Because that was it. Because by God, that was bloody well *it*.

"They're wellstone sheets?" he asked excitedly. "Thin and flexible, but able to be rigidized quickly?"

"Uh, affirmative," Marlon said, noting Bruno's change of mood with less than complete certainty. The resentment, Bruno saw, hadn't really vanished. It was just better hidden.

"So we wrap them around!" he said, excited anyway, anxious to share the insight. "Send it home in a *cast*, letting sunlight and solar wind do the lifting for us! If the inertia is still too great, which I'm sure it is, we erect sails, hundreds of kilometers wide, to collect the necessary force. With perfect reflection, momentum should build fairly rapidly, at least as compared to the alternative. It should provide enough time for your additional grapples to be built and placed, to stabilize the structure. It should; I believe it will!"

"Uh, Declarant," Sykes said, hesitantly and with visible reluctance, "the collapsiter is made of black holes. Universal superabsorbers. They'll *devour* the wellstone sheets—we have no way to prevent this."

"Indeed!" Bruno agreed, doffing his cap. "Indeed. But devour them

how quickly? The holes are far narrower than a silicon nucleus. Semi-safe, yes? Statistically, some erosion is bound to occur—*bound* to—but any resulting damage could be repaired locally, without interrupting the overall process."

He thrust his fist against the top of his hat, thinking to burst it out, to create a model with which to demonstrate. The hat proved tougher than it looked, though. He punched it harder, with no better result.

Sykes glanced down at the hat and back up again, as if doubting Bruno's sobriety. "Sir," he said tightly, "the space between the silicon atoms is enormous compared to the size of a neuble-mass black hole. At best, the collapsium will pass right through."

Bruno punched his hat again, aware that a crowd was building steadily all around, conscious of the weight of their collective gaze. "Will it, Declarant? After sucking electrons off the wellstone's surface? The nuclei, being positively charged, will be attracted directly to the collapson nodes, blocking them partially, all but plugging them." He looked at the hat, still good as new in his hands. "Blast. Look, you: I'm trying to remove your top."

At that, to his surprise, the hat's crown separated all around, and fluttered end over end to the ground, leaving a flat ring of leather in his hands, a broad disc with a head-sized hole through its center.

Blinking, he said to it, "Er, assume a toroidal cross-section, please."

OBLIGINGLY, THE HAT SHRANK ONE way and fattened the other, inflating to a kind of oversized, black leather donut in his hands. Still a bit surprised, he held this up for Marlon's inspection.

"Imagine this as your Ring Collapsiter." He held up a hand beside it, palm flat, fingers together. "This is your sheet of superreflector. When you wrap the one around the other—" he demonstrated by slowly grabbing the donut "—and then rigidize it—" he tensed his fist "—what you're doing, effectively, is balancing a sheet of joined marbles on a bed of, I dunno, small drains with tremendous suction behind them. Yes, each of your big marbles is really 14 drain-sized marbles, and yes, the substance of the drains is somewhat pliable. Wait long enough, and despite the energy barriers their mouths will pull protons right off the nuclei, widen, pull some more, widen some more ... but they won't get big enough to suck whole marbles down, not in the time frame that concerns us. So the erosion will be slow, and the collapsium's mass gain negligible. If there's damage, we'll just snip those collapsons out and replace them. It ought to work."

Did Marlon's face grow pale? In the twilight it was difficult to be sure.

"Good Lord, Bruno. I believe you're right."

"I haven't tried the math, of course. I'm guessing."

"As you guessed before? Pfui. I'll begin the computations in the morning, and then we'll know for certain. But at this point, I'd say you're well within the bounds of decorum to leap and prance and shout 'Eureka!' You've banished *my* doubts, and that's no mean accomplishment."

Eureka. Hmm, well. With his Greek-philosopher haircut fluttering in the breeze, Bruno had no doubts how ridiculous *that* would look. Should he run naked down the stairs as well, carrying the Archimedes impersonation to its logical conclusion? Conscious of the news cameras at his back, framing his silhouette against the changeless sunset, he instead cocked his hand back and snapped it forward, sailing the leather donut of his hat out into the empty air, in the general direction of the Ring Collapsiter.

"Majesty," he said quietly, "I believe we've found it."

But his words echoed from the rocks, booming, repeated and amplified by some reportant mechanism aimed at him, or perhaps by wellstone devices buried in the mountain itself and activated surreptitiously. In any case, a great cheer went up from the crowd, and suddenly everyone was thronging around him, wanting to shake his hand, and neither Tamra nor Krough interceded this time, for they were the first two in line.

6. In Which an Historic Ceremony Is Conducted

A WEEK LATER, BRUNO SAT, CHAIRLESS AND ALONE, ON THE SMOOTH di-clad surface of Marlon's work platform, gazing up at what he'd wrought. That haunting Cerenkov glow was gone, superreflected back into the body of the Ring Collapsiter, which now arched overhead as a pinkie-thin ribbon of yellow-white light, a huge smeared reflection of the sun below. Not too bright to look at, not quite; the reflecting surface was large enough to diffuse the tremendous radiance of Sol here inside the orbit of Mercury. Spaced around the ring were great circular patches, the "sails" he'd described to Marlon, but from this vantage, none reflected anything but starlight, too dim to make out in the brightness as anything but a lighter shade of black.

Fortunately, this new structure was only temporary. The collapsiter's fall had already slowed significantly, buying time and promising to buy still more, and once the new EM grapples were finally in place ... Well. He supposed the superreflector "cast" had a raw, functional beauty of its own, like the skeleton of a building turned inside-out, but of course it was nothing compared to the hidden glory of the collapsium itself. He wondered if there were more aesthetic solutions, if he'd hit by chance on one of the grimmer, uglier routes to salvation. He hoped not; the eyes of the future—his own included—would have enough to criticize him for as it was. To look back and find that he was, after all, a *bad collapsium engineer* ...

The notion troubled him for a few minutes, but finally faded until he was able to enjoy the peace here, the stillness, the absence of pressing gratitude and curiosity with which he knew no graceful way to cope. In the last seven days he'd been wined, dined, interviewed, and applauded without end. Without *purpose*, it seemed, for every demanded speech reinforced what the fax had taught him long ago: that his company was dull, that he had almost nothing witty or fascinating to say, that in fact he had a penchant for offending and embarrassing the very people who offered him kindness. And yet they pressed on, offering more and greater kindness, until for their own sakes he felt compelled to withdraw. He didn't *mind* being distressed half as much as he minded causing it in others, and he knew no other way to prevent it.

But eventually, this thought faded as well, and it might be said that Bruno meditated there on the platform, his mind drifting among the planets, untroubled. How long he sat there is not known, but after some interval had elapsed, he became aware of another presence on the platform with him, of Marlon Sykes settling down cross-legged next to him, following his gaze upward.

"I hear you're leaving," he said.

"Of course," Bruno agreed. "My work demands it."

"Today?"

"Probably, yes. Does that please you?"

"A bit," Marlon said, an admission for which Bruno respected him all the more. "It's difficult, being confronted with the likes of you. I didn't ask to be resentful; I don't seek it. Things would be much easier if I could count you as a friend."

"But you cannot."

"No. Never, least of all now. Go back to your brilliant *arc de fin* project, please. I've followed your work, you know, sometimes convinced myself I could have done likewise if you hadn't been there first. I hate that it isn't true. And of course there's Tamra, who no longer pines for me, her First Philander, if indeed she ever did. I suppose I should keep these thoughts to myself, but I can't quite manage such courtesy. For that, I apologize."

"Unnecessary," Bruno said. "I respect you and would have you speak your heart."

"Thank you, Declarant. That means ... something to me, at least."

They were silent for a while, looking up at their collapsium arch, each man alone in thought, until finally another voice called out behind them: Tamra's. "Marlon, blast it, I told you to get him *dressed*.

The ceremony is dress. Formal. He can't wear that. Is it your goal to embarrass me?"

"Not you, Highness," Marlon said innocently. "Why should I desire such a thing?"

"Ceremony?" Bruno asked, with rising alarm. The air, he realized, had been filling slowly with the buzz of news cameras.

"It's a surprise," Tamra said, "and we haven't much time. Quickly, step over to the fax! We'll ... erect a privacy screen or something." She was wearing the Diamond Crown, he noted, along with the Rings of Mars, Jupiter, and Saturn, and a formal gown of deepest purple. Even her perfect golden robots seemed, somehow, to have been gussied up for the occasion.

Sighing, Bruno examined himself; the clothing he'd selected this morning was casual, comfortable, no doubt long out of fashion. Would the eyes of history care about such a thing, or even notice? Did it make, really, the slightest bit of difference? He'd trimmed his foliage back a bit and combed most of the gray out of it, casting aside the ridiculous cartoon sage's façade, leaving only that measure of maturity which—in his estimation—he'd fairly earned. Surely that was enough.

Smirking uneasily, he spread his arms wide. "If you must take me, Majesty, I think it proper that you take me as I am. For this surprise of yours, which I do not seek."

"I'm not 'taking' you anywhere. We're doing this right here, in view of the collapsiter, and you do need to be properly dressed. Come on."

He shook his head. "No, Tamra. I won't."

Her eyes narrowed, her expression sharpening, weaponlike. She was not accustomed to refusal; the last time it had happened, Bruno had knelt in the mud to placate her. But he was, after all, the man of the hour. He was, after all, leaving once more for his true home in the wilderness, and not in any stiff contrivance of cummerbunds and ribbon silk. She seemed, finally, to sense that he felt no compulsion to obey her. And by corollary, that she had no means to force him.

The standoff ended; she sighed. "My feral sorcerer. All right, have it your way. Do at least stand up straight. We'll begin."

On that cue, the sides of the dome came alive with holies, three-dimensional windows looking out as if from balconies, looking down on crowds of people thronging below skies of blue, of pink, of saffron yellow, beneath mirrored domes and huge, vaulted ceilings of rock, of plaster, of ice and wellstone and steel. The bottom of the work platform's dome was soon covered; a new row started, like an igloo being constructed of video screens, until it seemed there must be at least one window open on every planet, moon, and drifting rock of the Queendom. Tens of millions of people, a goodly sampling of the Queendom's billions, all planning ahead for this, knowing where and when to show up.

"Typical," he muttered, looking from one screen to the next. "Everyone's in on the joke but me."

The responding laughter all but toppled him from his feet. Millions of people laughing all at once, from something he'd said! Even Marlon Sykes was chuckling. Bruno could not have been more astonished. Or embarrassed—he felt his cheeks warming.

"I'll make this quick," Tamra said tartly, to the assembled millions. "De Towaji has business elsewhere, and doubtless we've taken enough of his time already. Declarant Sykes, do you have the medal?"

"I do," Marlon said, stepping forward, a bronze-colored disc in his outstretched hand, trailing a loop of ribbon.

Tamra lifted it, took the ribbon in both hands and said, "Declarant-Philander Bruno de Towaji, it is my privilege as monarch of this Queendom to present you with an honor devised specifically for this occasion: the Medal of Salvation. It has no special properties, save the love and gratitude that inspire it."

Grudgingly, Bruno lowered his head and permitted her to loop the ribbon around his neck. She let the medal fall, so that when he stood up straight again it rested just over his heart.

"As the voice of all humanity, it is my privilege to say to you, 'Thanks, Bruno. We owe you one.'"

It was Bruno's turn to laugh, the Queendom's millions falling in behind him, less deafening than before. To the crowds Tamra said, "That's it. Thank you all for coming."

And then, to Bruno's relief, the holie screens began winking out, the igloo unbuilding itself around the three of them. Soon, the last of the crowds had vanished, leaving only the Ring Collapsiter itself to observe them.

"Leave us, please," Her Majesty said to Marlon Sykes.

"Gladly," he replied, walking to the fax, casting Bruno a pointed look before vanishing into it.

"So," she said.

"So," Bruno agreed.

She took his arm and led him in the direction Marlon had gone. "Will it be another decade before I see you next? Longer, perhaps?"

Bruno shrugged. "I have no way of knowing, Majesty. My work is intricate."

"Stow the formality, jerk. I've missed you."

"And I you, Tamra."

"But you don't miss ... this." She gestured, somehow indicating the whole of the Queendom.

Startled, he replied: "Who said I didn't miss it? Of course I do! Not all of it, but enough. I miss the smell of bread on a rainy street. I miss the laughter of children. Not *court*, of course; civilization demands things of me, things I don't know how to provide. Perhaps I'll learn someday, or people will stop asking, but for the moment I find it much simpler to be alone with my work."

"Simpler, perhaps. But are you happier?"

He stopped walking for a moment to think about that, and finally decided he didn't have an answer.

"You may kiss me goodbye," she said, stopping beside him, turning her face up toward his.

On either side of them, her robots tensed slightly.

Ignoring them, he bent and kissed her, reflecting that *this*, at least, he treasured from his old life. This, at least, he could always treasure. How many knew the softness of her lips? How many Philanders could a Virgin Queen declare? Precious few.

"Goodbye, Tam," he said, with unintended gruffness. And then, more softly, "I shouldn't think it's forever."

And then he stepped through the fax gate, into the little spaceship she'd parked on his lawn.

Home again.

He took a moment to admire the ship's red velvet interior, its burnished silver fittings and leather seats, superfluous since Tamra had no need to actually *ride* in this thing. But he supposed the ship would look strange without them. He drew a breath, then stepped out toward the little debarkation staircase and descended to his meadow below.

His sky was a much deeper blue than Earth's, and much clearer than Venus's. The little clouds drifting through it seemed like toys; the horizon was so very close. Behind him, the little teardrop-shaped spaceship closed its hatch, and began to hum as if warning him of impending liftoff. Very well. He strode purposefully toward his tiny house. His cottage, really.

"Door," he said when he was close enough. Obligingly, the house opened up, and he entered. All was still neat and tidy from Tamra's too-brief visit. Robots lined up in front of him, forming a corridor, bowing in twin waves as he passed.

"Stop it," he ordered, refusing at least to put up with that sort of thing in his own home. "Unseal the bedroom," he said after another moment.

Again, the house obliged immediately, but still Bruno looked around him, frowning, dissatisfied.

Outside, Tamra's spaceship lifted silently from the ground, hurling a shadow at the horizon and then vanishing into the sky. Still, Bruno frowned.

"Is anything wrong, sir?" the house finally asked.

Bruno grunted, then threw himself down on the sofa and grudgingly shook his head. "No, it's fine, everything's fine. It just looks smaller, that's all." □

THE SWEET TASTE OF REGRET

To the xenoarchaeologists, Siraga IV was a planet ripe for picking. But the planet itself had other plans.

BY KAREN HABER

ILLUSTRATION BY DAVID BECK

THEY ARE TAKING READINGS in the ruined crèche at Am Samirya, an outlying district of Siraga IV's capital—and only—city, and their guide has just shooed away the beggar with opaque irisless eyes and skin the color of bruises. Shooed her a bit too vigorously, Kelly thinks. All the old woman had done was to grin a toothless smile and shake her mottled wares, rattling the dried organs like castanets. It was festive, in a macabre sort of way. Like life.

Kelly bites back a nervous smile. She has the neat body and muscled



limbs of a former dancer, which she is. Her current occupation is xenoarchaeologist, one half of a survey team. She wears her black hair slicked back, and matte sunshades hide the shadows beneath her hazy gray eyes.

Her husband, Ted, is the other half of the survey team. He radiates icy assurance. He is tall, blond, and almost handsome enough to warrant his self-absorption.

They're called sniffers, scouts for Stanford/Toshiba, the big academicorp. Stan/Tosh sends them out to the faraway empty worlds to snoop for buried treasure. Once they're finished, Kelly thinks, the worlds are so empty they could rattle like the Siragan peasant's wares.

Yes, of course Kelly knows that the Siragans are harmless, that the desiccated things being offered to her are sad little mummy bundles: parts of vestigial organs removed long ago during the Siragans' coming-of-age rituals, and left as tribute to their gods. At least, that's what they—meaning the Terran xenopologists—think. Kelly scans the flat, empty horizon and muses that the Siragans' offerings did them no good. Their gods abandoned them, and in their place have come new deities, Janus-faced Terran gods: Commerce and Plunder.

The air has the faded tang of spices kept too long in the jar. There isn't a straight line left in the ancient crèche: everything leans or tilts, undulates and bulges. Yet it stands, it holds, and has held fast down the many patient centuries.

Time has worn out even the colors; they just seem to bleed into each other or, defeated, revert to their primary components. Green relinquishes blue, orange succumbs to its reds. All the shadows look sad and brown, iron going to rust, copper to green. Siraga IV is a festival of decay.

And yet the tour nets have made the planet sound glamorous, strange, exotic. A new find, the latest unknown place. Be the first to see, to touch, to taste. And the Siragans sound so much like Terrans—they picked up Gen Eng right away. They're certainly humanoid, if ugly, and they seem to understand barter and trade, selling and buying. Oh yes, and begging. They learned how to do that, too. Regular mimics, these Siragans.

Kelly and Ted find nothing of note and move on to the next pile of stones.

"This is Theater of Martyrs," the guide intones in her oddly accented English. Her breath whistles in her three nostrils. "Very old."

The once-gaudy mosaics on the remaining walls might have been enthralling when new, glinting with strange alien metals, telling strange alien tales. But, time-dimmed, time-worn, the scattered tesserae merely depress Kelly with their pallor, their beclouded views of the Siragans' brighter past.

"Grand," Ted says.

"Impressive," Kelly adds. "Tragic." Will he top her in adjectival fervor? No. Another gambit declined.

Pausing before a scene of warriors frozen midsurge at the peak of their killing wave, Kelly hears hoofbeats and howled victory cries, smells coppery blood, tastes acrid flesh of the enemy. And the scenes begin to change, to degrade into abstract patterns, dark and light, waves of color moving toward her, mutating.

No. Wait.

She turns, head spinning, gulps air.

When she turns back the walls are dull, their grandeur faded as before. Ted stands to her left, making ultrasound scans of the collapsed walls.

This is an exhausted world, she thinks. An extinguished culture whose trail of debris may lead her to ancient wonders. She's been on a hundred such worlds, seen and felt a hundred strange things.

A Siragan child of two or three spans jumps out from behind a crumbling archway. He wears a ragged blouse and one of his three nostrils leaks a rusty trail down his piebald cheek. He holds out his six-fingered hand, insistent. "Creedits? Creedits!"

Ted looks up from his scanner and glares.

With hurried steps Kelly gets between them. "No, no." she says. To the guide, "Get rid of him." And silently, to the child, "I'm sorry. If I were alone it might be different ..."

But the little beggar has his back to her, is already joggling away.

On to the next site, a great pit lined by archways and pillars. The walls here are blessedly dead and silent. Kelly breathes, in-out, in-out.

EIGHTY YEARS AGO TERRAN SCOUTS HAD STEPPED OUT UPON THE RED soil of Siraga IV and found a drying, dying world. There were faded signs of great civilization—perhaps even space-faring, once upon a time—but something terrible had happened here long ago. The remaining Siragans didn't talk about it, or about much else. They agreed to the treaty—and offer of protection—with relief—or amusement.

The Terran scouts returned home touting schemes for developing their find into a tourist playground. In a fortnight they were rich enough to pay others to do the prospecting, and had retired to the fertile domes of Europa.

On Siraga IV, after an initial flurry of investments, the pace of development slowed. Tour-net directors discovered that not many people wanted to go so far to watch a wrinkled peasant shake her creepy wares in the dust. There were sexier, livelier places closer to home, with stranger aliens selling more interesting things. So Siraga IV quickly slipped off the A-list and was left with its weedy air of neglect, its quiet, and its secrets.

AT THE RESTAURANT—A RUINED TEMPLE—KELLY AND TED ARE seated at what used to be the altar. The walls are again covered in mosaics, and some of these still catch the light. In the faded temple gardens the Siragan lilies leave a blood-like stain where they fall.

Only one other table is occupied—by a sour-looking Terran couple dressed for a night at the casino. They probably bought this trip as part of some cut-rate net package, Kelly thinks. Or perhaps they lost a bet. The woman, whose iridescent stretchsuit can't quite hold back the bulge of her stomach, giggles to her bald companion: "God, it's really barbaric here, isn't it, Jim?"

Jim merely grunts, never pausing as he tucks into his heaping plate, so Kelly silently answers for him: Yes it is, yes, yes, yes. And empty. Where did everybody go?

At her own table Ted has launched a frontal attack on his meal and is chewing hard, his eyes on his plate.

Ostensibly this is a rest cure for them—meaning Kelly—after The Terrible Thing That We Don't Talk About. The insurance settlement paid for the long passage, and Stan/Tosh encouraged them to take advantage of the trip to do some research. So they got on a big ship—"Climb right back up on the horse that threw you," said Ted—and took a cold-sleep trip to Siraga IV.

Again Kelly wonders at the emptiness of the planet. A few natives wander about, yes, but what happened to the rest of the Siragans? Did they kill each other off, all of those singing-drinking-fighting people in the mosaics? She stares at the walls. The stones suddenly glitter with undecipherable meanings. Kelly blushes, struck by a sense of trespass and intrusion.

She darts a glance at Ted. He is still engrossed in his meal. Neither Jim nor his corpulent mate seem aware of the wrongness of their presence in the midst of ancient profundities.

Taking a deep breath, Kelly has a deep sip of the green wine. The walls around her fade back and die. She's a professional. This is just another ancient place.

"Kel? Are you going to finish that salad?"

Silently she confronts her reflection in the gilded water glass. A pale, thin woman with dark eyes and hair stares back. She might be pretty if she smiled.

"Kelly?" Ted squints as though he's peering into a very bright light.

His anxiety stabs at her, even though it's only fear for himself and what he'll do if she collapses. "I'm fine. Just a bit tired." She pushes her untouched plate toward him and takes another sip of wine. The cool, bitter liquid glides down her throat.

Ted, she knows, wants to get moving: on to the next site, the next ruin, the next potential find. Yes, of course. And she does, too. She puts down her napkin. Picks up her hat.

It's not much, this next ruin, just another pile of pale stones with a few scratches here and there that have been exaggerated by xenocryptologists—vying for corporate tenure, no doubt—into an ancient written language.

The next site is better. It sprawls over uneven ground, stacks toppled into tempting masses. Kelly can see Ted marking it in his mental catalog for future reference. Yes, very tempting. She longs to linger here in the shade of a ruined chamber but their guide chirps: "OK, next." The Siragan herds them along, her face furrowed, her figure squat and wide. "Next."

"But I want to stay here," Ted says. "*Stay. Here.*"

Although the guide speaks Gen Eng she doesn't seem to comprehend, even when Ted raises his voice. Her frown gets deeper, her voice shriller. Ted has departed from her official script. "Next, next, next!"

"Never mind," he whispers to Kelly. "We'll come back on our own, without her, now that I know the way."

"We're not supposed to visit the ruins unescorted." Kelly says. That's her part. It's an implicit routine between them. Ted, the bold and naughty explorer; Kelly, the by-the-book academic.

Ted smiles, understanding the joke. "We'll probably find something terrific. Special."

Well, this won't be the first time they've crept into a ruin after hours. The entire world's a ruin, isn't it? The natives don't seem to give a damn. They're doing them a favor, really. Doesn't Ted always tell her that? He thinks he's on the side of the angels, does Ted, working to save the traces of ancient alien cultures.

Kelly smiles back. The point here is to salve—and save—the marriage. The partnership. She's sworn it upon her lover's starry grave. So, "Yes," she says. "Yes. Of course we will."

IN THE GREEN MURK THAT PASSES FOR NIGHTFALL NOT A CREATURE stirs. The diurnal Siragans have already entered their evening comas. Their inert bodies dot the landscape like so many robots low on fuel.

The few tourists who still bother to visit Siraga IV stay at the sleek mechanized hotel near the spaceport and spend their evenings in simbars and mech casinos. Outside, all is silence. There are no night predators rustling through the sparse and spiky vegetation. Nary an insect mutters or drones. Ted and Kelly could be the only alert and moving creatures on the face of the planet.

Ted walks swiftly toward the site, carrying his lamp and sensors. Kelly trails behind. The ground beneath their feet is oddly textured, rippled as though wave after wave of molten matter had frozen solid in mid-eddy.

Ted stumbles. "Damn!" He catches himself. "Hold that light higher, will you?"

Ted circles the site, circles again, pounces. He's brought a magnetometer, infrared sensor, ultrasound imager, all his precious gadgets, everything he needs. Whistling, he goes to work.

Kelly keeps watch on the monitor as he begins a careful sounding of the area, looking for buried treasure. How dense are the rock layers, how porous? Can they get a complete ultrasound image? Ted clucks and fusses over the screen.

She leans closer. "Ted, I'm getting something!"

Sees the blue snow, the green, and then the image emerges from the storm. Grinning with impersonal malice, eyes empty, fathomless. The screen readout says: "Composition is partially organic, part inert material, roughly two thousand years old."

Ted is by her side, staring intently at the screen. "Looks like a skull. Maybe an old tomb."

A skull, yes. "What's that yellow bloom on it?" she asks. "Mold?"

Ted waves her to silence. "Hold on. I'm getting a better focus."

Images, tiny figures frozen in mid-dance, coat the bone that once supported the skin of cheeks, chin, and forehead.

Not mold, Kelly sees. Patterns, like the walls of the ruins. "Ted, they're some kind of micromosaics."

He frowns. Kelly has forgotten that he likes to be the one to do the explaining.

"Incredible," he says, after a beat. "I've never seen this degree of corpse decoration before. I wonder, did they exhume the bones and cover them in a ritual years after the initial burial? Or did they remove the flesh directly after death? Just look at the patterns on the skull itself! Kelly, this is amazing!"

She lets him crow, although the thing isn't even out of the ground yet. Aloud she says, "What do you think those marks are?"

"Narrative? Symbolic?" His eyes gleam in the lamplight. "Gods, Kel, it could be a whole new language. Get me the small digger."

She makes a great show of hesitation. "Ted, you can't." It's another part of their routine, their shared ritual. Of course he can and will.

"Don't worry, I'll study it, photo it for the records, document everything. Hell, the Siragans won't miss it. They probably don't even know it's there."

Another triumph for Stan/Tosh, Kelly thinks. For Ted and, by extension, for her. What does the company do with all the swell artifacts bagged by its busy archaeologists? She used to believe that all the best items went to museums. Now she wonders. Are certain finds available to the highest bidder through some loophole in the xe'preservation laws?

She doesn't want to think about that. What's important is that Stan/Tosh keeps the two of them afloat on a sea of credits and employee benefits. If Ted is so deluded that he thinks he's protecting ancient alien cultures by stealing from them for their employer, so be it. She shivers in the dark. Is it her imagination, or is the temperature falling? Ted seems comfortable in shorts and light shirt. She crosses her arms across her chest, hugging her heat to herself.

Ted uses the silencer on the auger and the micromag guide to make a surgical incision in the ground and pull out his prize. He holds it aloft in one hand.

Please, Kelly thinks, no Shakespearean clichés. Please.

"For study," he says. To keep, he means.

She has to admit that it's a remarkable object: a humanoid skull approximately twice the size of a Terran's head. The eye-pits are deep, the greenish canines protruding and cracked. And the mosaics that cover it must have once been quite amazing, though now they're flat and dull from their long burial.

Kelly presses one finger against the skull's hard right cheek. It feels glassy and strangely warm.

The thing comes alive beneath her hands, the mosaics swirling in dizzying patterns. She gasps in surprise.

"What the hell?" Ted snatches it back.

Kelly scans the flat, empty horizon and muses that the Siragans' offerings did them no good.

The patterns flow over the skull's surface in undulating waves of gold and blue, green and purple and silver, images morphing and changing. What looks very much like an orange starfish with ears wiggles its arms. A many-legged animal capers across the equivalent of the occipital lobe. Shifting. Changing.

"The designs must be air-triggered," she says. "Look at the way they move. Simply amazing, isn't it?"

Ted is staring now, but not at the skull. "Kelly, what are you talking about?"

The skull sits in his hands. The designs are rigid and still.

Did she imagine it?

Covering quickly, she says, "I just thought the fluidity of the pattern was remarkably graceful. Don't you think so?"

"Yes, it's a masterpiece." He holds the skull higher. "Unique. Nothing like it in this quadrant. This will make the archives for sure."

"Wonderful." And perhaps he's right. Perhaps this particular piece will put their holos on the net, in the records.

Perhaps the mosaics never really moved at all.

At last they turn for the hotel, and bed.

Ted sets the skull upon the desk in their room.

Later, in bed, Ted is aggressive, exuberant, the hunter triumphant. Kelly is pleased. When he pays attention here it can be good, very good.

The skull watches them from empty eye sockets, grinning. The mosaics begin to writhe along its surface. Kelly shuts her eyes. But she knows that the thing is watching.

Finally she complains, and Ted laughs, and turns its face to the wall.

In the morning, the skull is still and dead. Nevertheless, Kelly gives it wide berth—telling herself that she's being unprofessional.

THE LAND BEYOND AM SAMIRYA'S CITY LIMITS IS INTENSELY ORANGE. Lumpish hills, naked but for strange, mounded, geologic extrusions, dot the horizon. It looks like what it is: a vacant tranquil place. A dying civilization on a soon-to-be-barren planet. Sitting beside Ted in the rover, behind their guide, Kelly begins to think that Siraga IV could only be improved by development. Bring on the casino-mall-theater-museums. The whole noisy carnival of 22nd-century Terran development.

She hears an odd stir and murmur, as of a great crowd assembled in an auditorium, waiting for a performance to begin. But the hills are empty, the land around her serene and still.

They rumble over a corrugated old road into a flat and blasted place, a hundred meters of incinerated plains stretching before them, glittering with a glassy brilliance. Their radiation monitor makes a desultory click.

"S'nothing," says the guide. "A phantom."

They've been assured that it's safe, safe, safe. But what was that click? What terrible thing happened here, and how long ago? Who fought? Who died? The blasted ground retains its secrets; the ion counter, after its single cryptic comment, remains silent.

They encounter him before lunch: a little gray native, dry as a prune, peering up boldly from under the brim of his battered hat. "Credits?" he calls. "Credits?" The air whistles in his three nostrils.

Probing eyes. Glowing face. He ignores Ted and focuses on Kelly. She feels suddenly transparent. Can he count the discs in her backbone? See through and out the other side of her to the orange hills on the horizon?

He licks a stubby finger and, before she can stop him, touches her cheek. "Sweetness," he says. "Great, great sweetness." Warmth radiates from her cheek.

His eyes hold her. In their inky depths she sees pinpoints of light, sees patterns wheeling and dancing.

To break the spell she says, more to Ted than the Siragan, "Sweetness? No one has *ever* accused me of that before."

Ted's smile is puckered at the edges.

The beggar gives the Siragan equivalent of a shrug. "Of all the tastes, regret is always the sweetest."

Their guide says something sharp in the native language.

Ted has put his hands on her shoulders, squeezing. This gesture—outwardly a sign of affection—is truly a private message of impatience. Ted is never publicly demonstrative. He just wants to move on. Yet she lingers, intrigued, to question the little Siragan again.

"How do you know this?"

"To taste is to know."

Ted is dragging her away now. The guide gestures. "Next! Next!" If Kelly were alone she might slip a credit into the beggar's bowl. But she's not alone, is she?

In the rover she says, "What do you make of that?"

"Not much. Just another panhandler with another phony gimmick."

"Don't you wonder? I don't believe —"

"Fine. Believe whatever you want." Ted is finished with the topic. His concern is with the past—Siraga IV's—and his future.

Back in the city Ted suggests that they expand their nightly prowls. Kelly's willingness wanes. Luck is one thing, she thinks, greed another.

"Ted, we found a marvelous thing. Why push harder? Let's put our report together and just go home." She wants a blue sky and brown land, crowds of people in the street, noise that makes sense to her.

Ted doesn't hear or doesn't listen. "This is just the beginning," he says. "We're on virgin territory. The big finds haven't been made here, yet. We can leave our mark on Siraga IV."

"Like Schliemann at Troy?"

He turns to her, wounded and wronged. "How can you compare us to that ignorant blunderer?"

"He had good intentions too."

Once Ted's ambitions had thrilled her, years ago, when he was starting out, when he really cared about these cultures and the people who built them. He had wooed her, once, with his earnest scholarly intentions that had so matched her own. But the corporate marathon at Stan/Tosh has worn down his yearnings, even if he hasn't really noticed. Now Ted pretends to care, but all that he really requires is a raise at the end of the year and a new culture to plunder.

She's secretly relieved when he gives her the silent treatment. They turn for the hotel. He'll want a shower. She wants a drink.

TO HER SURPRISE THE PERPETUALLY EMPTY BAR AT THE HOTEL actually contains another tenant besides the mechwaiter. A leathery woman with gray hair caught in a hard twist at the back of her head presides, alone, at a table near the door. Her eyes, light blue and bright in her olive face, catch Kelly's. She nods at the seat beside her.

"I'll be damned." Her voice, abraded by whiskey, is a throaty rasp. There's life in her tired eyes, a welcoming lift to her chin. "Thought I was the only human here."

Kelly makes a nervous joke. "What gives you any reason to think that I'm human?"

The answering laugh goes on a beat too long. The old woman lifts her half-empty glass and says, "Cheers, Miss It. I'm Peg Rogers. Pray tell what brings you to the ass-end of this benighted quadrant?"

Kelly explains, briefly, about Stan/Tosh, about Ted. "And you? How long are you here for?"

Another husky guffaw is followed by another gulp of liquor. There's something about her warmth that's too hearty, too rehearsed. "Life sentence, honey. My husband and I opened this hotel. He died. I'm the memsahib here, mechanic, driver. You name it."

"By yourself? You're kidding." Kelly wonders why she hasn't seen her before.

"Wish I were. Just me and my mechs."

"Don't you get lonely? Especially at night?"

Her look turns inward. "Not any more."

What, Kelly thinks, does she mean? Has she found a lover? Here? At her age? And then she regrets her question. "Forgive me. It's none of my business."

Peg waves aside the gaffe. "Not to worry. If I may say so, nature abhors a vacuum. Or is it the other way around?" She laughs again and refills her glass.

Something about the woman troubles Kelly. She sips politely at her drink and plans her escape.

"Yeah," says Peg. "Hates a goddamned vacuum. Or unnecessary waste. Y'see, I tried to kill myself when Gregor went. But the damned medbot got me fixed up." She gives a rueful chuckle. "Of all the emotions, regret is the bitterest."

Kelly looks up, startled. Hadn't the old Siragan beggar made that same remark? No, wait. Something very like it. If only she could remember.

"And so," Peg continues. "Here I be. And, since you asked, no, I haven't been lonely."

I'm tired, Kelly thinks, and this is making me feel uncomfortable. She pushes her chair back. "Excuse me. My husband will be wondering what's become of me."

Peg raises her glass once again in mordant salute.

When Kelly gets to the room she sees that Ted hasn't worried, has, in fact, been too busy documenting the skull to think about her at all. She tells him about the odd woman in the bar anyway. He looks up long enough to smile, and the mosaic skull grins with him, over his shoulder. Patterns writhe across its rigid visage, tireless.

Regret is the sweetest emotion.

That was what the beggar had said. She remembers, now.

THE NEXT DAY. TED LEAVES FOR AN OVERNIGHT DIG OUTSIDE THE CITY. With his back to her, loading the rover, he says that Kelly looks tired and should stay behind. Rest up. With a wave he's off to the ruins, leaving her alone with the skull.

For a few hours she makes notes, runs spectrographic tests and carbon dating, recording the results. But she can't drown out the isolation, her growing uneasiness. She's handled bones before, humanoid remains, but she's never had this peculiar twitchy feeling. The skull stares at her from empty eye-pits. For a moment she's tempted to shut it away in the closet.

Certain anomalies in its skeletal structure puzzle her. The maxilla, the mandible, don't quite match the configurations of modern Siragans. The chemical analysis she's made to date the thing offers conundrums as well: The mosaics and bone contain unique compounds that occur nowhere else on the planet. Kelly requests a physio-recon, and a moment later is peering at a strange face onscreen.

She stares uneasily at the harsh lines of the face, the cruel jaw and rippling brow. Where are the nose holes? Could it be a less evolved type? She's no xenoanthropologist, but something is very wrong here. It certainly doesn't resemble the natives she's observed.

Of course, the recon program isn't perfect. Still, what if the skull isn't Siragan? What if it belongs to an older race, some alien beings. Or, perhaps, the original owners of the planet, whom the Siragans dispossessed?

Even the skull's manner of burial is problematic: atypical of Siragan grave rituals. It was alone, without other bones or objects, as if it had merely been tossed away like so much trash.

Kelly's heart begins to pound. She might be onto something here. A find that might dwarf any other here.

Whose skull was it? And why did the mosaics seem to move when she looked at them? Was there any relationship between those mosaics and the ones on the walls of the outdoor ruins?

Kelly enters her questions and observations.

What if the race currently occupying this planet isn't native to it at all but, rather, the tired remnants of usurping conquerors? Those stylized faces in the wall murals—fierce, proud, bloodthirsty—could those be the actual natives, conquered and ground underfoot?

She has too many questions and too few answers.

Reluctantly, she shuts down the screen.

A diversion is what she needs. She imagines Ted finding a marvelous cache of objects and ancient instruments. Maybe even an ancient spaceship. He digs and digs.

And he finds skulls by the hundreds, the thousands. "Look, darling," he cries. "You wondered where all the Siragans went? Well, here they are. Won't we get a great price for them?"

The skulls grin. Their teeth rattle. Their empty staring eyes watch her.

So much for diversion.

Any company, even that of a peculiar old woman, is better than this.

Downstairs, Peg Rogers waves her over to her table.

Without much effort they kill a bottle of good red wine. When Kelly refuses the offer of another, Peg puts down her glass with a resounding thunk and stands carefully. She has, Kelly sees, a game leg.

"C'mon." Despite her limp she swaggers toward the door.

"Where are we going?"

"Show you something. A little secret." Peg winks over her shoulder.

Like a sleepwalker Kelly follows her out of the bar and through corridors and doorways, in-out, in-out.

They take the stairs slowly, descending to a deep, dank cave of a basement where tables and chairs, lumpish under dustcloths, are stowed. Down another flight of stairs and they are in a damp subbasement. No lights down here: only lanterns and torches.

Peg hands Kelly a lantern, holds her own high and gestures. "This way."

They walk for a long time through a musty, interminable tunnel. The hotel is far above and behind them. Perhaps, Kelly thinks giddily, they have already left the city. This tunnel will take them clear across to the other side of the world.

They emerge from a low-ceilinged passage into a vast chamber.

Peg stops. "Look," she says. "Over here."

She shines her lamp upon the ceiling and moves the beam down.

Kelly gasps.

The rough-cut orange walls are alive with writhing mosaics that seem to shift and surge as the light hits them, just like the mosaics on the skull.

Siragans coil in embrace—or is it in battle? Kelly can't tell. Although she watches carefully, she never sees the same image twice. What are these images, she wonders. An unfolding mural? An epic poem of the ancients?

"Ted will go crazy when he sees this," she says.

Peg closes her eyes. Some obscure emotion struggles across her face. She forces a word out. "No." More struggle. "No, only for you."

Kelly is flattered but confused. For her? What does that mean? Of course she'll tell Ted. He's her partner. But she doesn't want to offend Peg. Think of a question, quick. "These patterns—how do they work? Are they light-activated? Why don't the mosaics in the ruins at the crèche move?"

"I don't know."

"How did you find these?"

"My husband, Gregor, found 'em when we excavated the foundation for the hotel."

The mosaics begin to writhe along its surface. Kelly shuts her **eyes.** But she knows that the thing is watching.

Peg falls silent. Perhaps she's lost in her memories, Kelly thinks. She stares at the gaudy kaleidoscope on the wall until she hears a moan.

Peg's head has fallen back. Her eyes are half-closed and she pants for air.

"Peg, are you all right?"

The woman's jaws move, working for a moment in an odd mechanical way. Her voice, when it comes, is faint, as if she's speaking across a great distance.

"Oh, god, the walls are going! And the air. I can't see."

Kelly wants to take a step toward the stricken woman but somehow she can't. "Peg, can you hear me?"

"I knew I was going to die and I wondered if it would hurt."

The words are familiar and terrible. Kelly can't listen to them.

"I thought I was dying. But the webs worked. The one on my seat. But not Rick's."

"Peg, stop it!" How, Kelly wonders, is she doing this?

"Stay away from the hole in the side. Hold on! Oh, Rick, hold on! No! No!"

Kelly stumbles back, away, until Peg's voice has dwindled to a murmur. She leaves it behind and somehow finds the route through the catacombs, through the maze of tunnels. She takes a false turn, recovers, finds the path. This way? Yes, and that? No, wait, over here.

Now she's in the sub-basement of the hotel. The stairs are steep and she gasps for breath in her upward rush.

The bright light of the lobby makes her eyes tear. The elevator is better, darker. The door to her room opens easily.

Inside, the first thing Kelly sees is the skull, smiling at her from its perch on the top of the desk. She's confused. Hadn't she left it locked in the closet?

She glances in the mirror. The skull is there, too, mocking her as the mosaics flash on and off, patterns capering across its surface. She closes her eyes. The silvery glass is cool against her forehead. Better. Much better.

She hears a voice. Peg's voice. It's coming from the skull.

"We were on our way home from the hospital. And Ted said, don't dwell on what's happened. Put it behind you."

Kelly opens her eyes. She recognizes the words, of course. They're hers. Telling the doctor about her thoughts, her feelings. When IT happened. But how—how—?

"Don't dwell on the past? That's a bad joke. What else do we dwell on? Isn't that our job?"

"Shut up," she says. "Shut up, shut up, shut up!"

The skull ignores her. In fact, it seems to speak faster. And the images on its surface—are they beginning to make an odd kind of sense? Kelly wants to shut her eyes but she can't. The voice goes on, confirming what she already knows, what she's already thought.

"So, doctor, yes, I was running away from Ted and his rock piles. Running to Rick, who wanted to have children and a life that was more than digs and meetings. I loved him—his hands, his quick bright grace, and hummingbird charm. His silver hair. His smile."

She hadn't allowed herself to think about Rick, to think about how much she missed him, since she and Ted had set out for Siraga IV.

"I remember the cold and the dark and the stars. And Rick being pulled away from me. His survival web failed, but not mine. Why? Why not mine?"

Kelly doesn't understand how this is happening. She stands, back to the wall, transfixed, listening. She can't help herself.

"But everything's all right now. I'm back, and we're here, and Ted's so tired of hearing about survivor's guilt. Who could blame him, really?"

Now the voice changes, slurs to become more alien and more resonant. It sounds like a choir, as though many voices have joined together. The words aren't familiar, aren't hers.

Life is more than beginning and ending, the voices sing. *More than a single finite life span.*

She wants to listen, suddenly. She's hungry for these words, starving for them.

The forms vary, yes, and the continuum shifts and changes, but there is connection and continuity. There is understanding. To taste is to know.

Kelly feels the sudden press and embrace of bodies, hundreds of them. The air is filled with a sweet cloying scent.

She sees scenes of battle, of great carnage, and greater victories. A visual encyclopedia of hundreds of years of this planet's ancient history. The patterns of the mosaics are meshing, explaining—

And suddenly she understands.

The mosaics on the skull—and those on the walls—are a telepathic codex, filled with information about the Siragans.

This is it, she realizes. This is the find of a lifetime. It will explain this culture, everything that happened here. Some kind of telepathic interface with the Siragan's cultural archives. A database keyed by the mosaics.

Wait until she shows Ted. They'll publish and amaze everyone. He was right. Get back up on the horse that threw you.

Kelly lifts the skull up and stares, eye to eye-pit.

"What are you?" she says. "Who made you? When? Why?"

The skull grins and is silent. She hadn't really expected a response. Well, she'll find the answers. Now she knows what questions to ask.

Holding the skull in one hand, she scoops up some recording equipment and hurries down to the lobby.

KELLY'S HEART POUNDS WITH EXHILARATION AND GRATITUDE. SHE'S got to find Peg, to thank her and apologize for her behavior, turning and running away like a frightened schoolgirl. Surely she's come back upstairs by now. Maybe she's in the bar.

But the bar is dark and empty.

Caught up in her excitement, Kelly floats in the fluid moment. She knows that these are her feet moving, her lungs pumping air. But there is something she ought to remember, something else, about Peg.

She can't quite recall, can't quite focus on it.

She sets the skull down on the counter and grinds the button that summons the old-style mechbot to the front desk. Whirring, gears ticking, it rolls out, heat-seeking photocells moving its "face" in her direction. "Can I help you?" Its voice is a bad parody of human. For a moment she thinks that it's the skull, speaking again.

What does she want? Oh, right, she remembers. "I'd like to leave a message for Mrs. Rogers. Could you patch me through to her room mail, please?"

"Is she staying here with us?"

Kelly frowns. "She's the owner."

...the sudden press and embrace of bodies, hundreds of them. The air is filled with a sweet cloying scent.

"Please wait." The thing whirrs quietly. Blue lights blink on, blink off, across its broad black chest. "There's no record of anyone here by that name."

"What are you talking about?"

What's wrong with the thing? Kelly wonders. Is its memory shot?

The machine drones on. "These premises are owned by the Oskjulio Corporation. These premises were sold to the Oskjulio Corporation nine cycles ago by one M.E. Rogers."

"Nine years ago?"

"No. Nine cycles. Roughly, 70 of your Earth years."

The air presses in on Kelly. She can't think, can't speak.

"Would you like a data disc for your personal records?"

"No." She backs away. "No. Thank you very much."

It must be wrong, she thinks. Slipped a gear somewhere. She'll have to ask Peg about it. Maybe it's a joke. Yes, yes, that's it. Suddenly, she remembers where Peg is.

As she jolts down the stairs she tells herself that of course it's a prank. What a joker that Peg is. Kelly moves confidently, the skull tucked in the crook of her arm.

Wait until she explains to Peg what she thinks those wall mosaics mean. It's an incredible discovery. She really ought to credit Peg in her report.

Through this tunnel. Along this dark passage. Yes. Yes. Yes. But when she gets down to the deepest basement, it's empty.

"Peg? Hello?"

Not even an echo answers.

Kelly's excitement ebbs and suddenly she's frightened. The light gives out. She gropes along the hard rock until she sees a faint flickering glow. As she draws nearer she can tell that it's a lamp lying on its side in a vast cavern.

"Peg!" Even before she touches her, she knows.

Peg is on the ground, dead, reduced to pure bone. Already the mosaics crawl over her skull.

The mouth in the skull opens. Speaks.

"Even a good tool wears out."

Kelly turns to the wall where the mosaics dance.

Peg is a trash pile, rags and bone at her feet. Kelly kicks her to bits as she moves closer to the truth.

The mosaics crawl off the wall and onto her skin, engulfing her in a kaleidoscopic wave.

Now Kelly truly understands that she was wrong about the Siragans. They had no art. Those people on the wall mosaics aren't Siragans. Not at all. They're conquerors—the Hojai—who brought their own internal disputes to this planet along with their artwork and their technology.

Their deathless technology.

And the mosaics, as she suspected, are so very much more than mere decoration. More like microbe-sensors, information-gathering devices, bioengineered to penetrate networks of nerves and sinews, of blood and synapse and sensation, to overwhelm, absorb, and conquer each host, each victim. To save and savor their memories and lives in a group memory. A group memory, yes, but it's only so much stored data. There is nothing of life here.

It's an old machine but a good one. It still works, long after its builders have forgotten how to run it and become nothing more than appendages of their own collection device.

For this *is* a collection. There are many other flavors and memories here, cultures and empires.

"Even a good tool wears out," Peg had said.

Yes, Kelly thinks. Of course. Peg was a good tool.

The collection machine would require remotes, mobile sensors that could assess potential acquisitions.

So the Hojai's device had made its collections—spread its infection—traveling with its makers long and far, tasting, taking, leaving in its wake empty worlds rattling in the solar winds.

The only thing that had stopped it was the inevitable decay of the Hojai themselves. They had fallen, but not their tool. It had been waiting, trapped, upon Siraga IV, caught in the somnolence of the defeated world and its own builders' decadence.

Now its long wait has ended.

Now Kelly knows what happened to the original Siragans, how they were coveted and savored and taken. The taste of them swims in her mind, lush and earthy, ending on a bitter tang. She savors the sour mix of savagery and splendor that was in them. Their triumphs. Their cruelties. The constant tribal warfare that had distracted and lamed them, leaving them ripe for acquisition.

Vast is the Hojai's repository, carefully collected by connoisseurs. Kelly knows. The mosaics show her:

the dying moments of a gaseous race whose planet will be consumed in a supernova

the thrilling mystic visions of a limbless blind race light-centuries distant

the Siragans' memory of the Strangers' landing, long ago, melting the ground beneath them on that red-baked plain outside the city

The Strangers—the Hojai—were so kind, so caring about the Siragans. They took only the best. Cherished. Consumed and preserved the collective racial memory. Replaced them and became, in time, the only possessors of the planet.

What were the Hojai now? A degraded race. What had Peg called them? Tasters. Hearers. That old peasant with the piercing eyes had been a taster, and Peg, a taker, a trapper.

AND NOW SOMETHING BIG AND HUNGRY RIPPLES AND stretches, moving through all the memories toward Kelly. Something that was asleep until she and Ted poked it back into ravenous arousal.

—It reaches for her. Of course.

No, she thinks. No. No, please. But there's no resisting, is there?

—Tastes.

The very essence of her soul is being lapped at by the Hojai's acquisitive mechanical consciousness.

Gods, please no.

Kelly struggles, but she's weakening.

Again she hears a voice but now she's not certain if she is speaking or if it's the Hojai's device.

Why fight us when this is what you sought, what you need? Come to us and rest, be one.

Be complete.

To taste is to know.

For another moment she fights. For herself, for Ted. But it is too hard for one person, alone.

All of Kelly's bad memories are leaving her, being absorbed, assimilated. Prized and saved. She is known, seen, tasted.

It isn't a rape, really. More like a cleansing, so thorough that when it's done, there is nothing left alive.

That's the best part for Kelly, and so she leans into the machine's embrace. She can rest here, yes, rest the way her lover Rick is resting in eternal night. The part of her that has hurt and yearned ever since the accident is silent now, at peace. Time finally closes its portal around her and she's safe.

THE DREAM RECEDES. KELLY AWAKENS.

The walls of the cavern are dark, extinguished. A weak glow still emanates from the lamp.

She's eager to get back to the surface of the world, to await the return of her husband, to welcome him and see the objects he has found.

She will nod and smile, ask the appropriate questions, and when he is finished, she has something of her own to show him. Down here in the dark. It's the find of a lifetime.

Many lifetimes.

She'll show him, and then, together, they can show everybody at Stan/Tosh.

Kelly smiles. Ted is strong and more attached to his life. He'll fight harder than she did. Poor Ted.

She can almost taste the sweetness of his regret. □

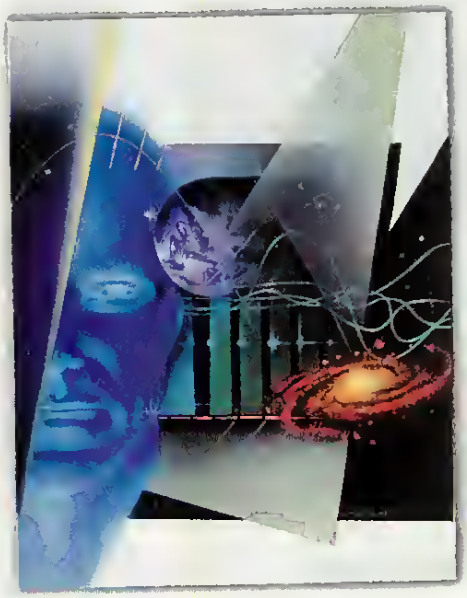


BELOW: The airbrush and acrylic painting for *The Final Battle* by William C. Dietz firmly brought the alien to life. **OPPOSITE:** By being more conceptual than literal, Jensen's cover to *Vast* by Linda Nagata delivars an otherworldy thrill unusual in its approach.

freedom fighter

An exploration of the confrontational compositions of the eclectic Bruce Jensen.

By Karen Haber



When you look at a work by Bruce Jensen, don't be surprised if the painting stares right back at you. Jensen is known for confrontational compositions, often dealing with cyberpunk themes. His acrylic paintings are characterized by strong geometrics, *trompe l'oeil* realism, and a collage-like quality that is often heightened by digitalized manipulation of the imagery. His use of color is bold and his portraiture is edgy and unsettling.

His notable covers have included for *The Diamond Age* by Neal Stephenson (Bantam/Spectra) and the reissue of *Do Androids Dream of Electric Sheep* by Philip K. Dick (Ballantine). Another, a memorable painting for *The Final Battle* by William C. Dietz (Berkley), shows an alien face glaring at the reader through a jagged opening, one eye covered by a strange, faceted lens. The clashing colors and powerful diagonals draw the viewer directly into a confrontation with the unknown.

"I only do Science Fiction art," Jensen says. "And there's a natural tendency in SF art to paint something realistically—it's sort of a conservative art mode wherein you're realizing fantastic things in realistic ways. But I like to push that, to take a less literal approach. I want to evoke the books' themes without painting a specific scene or situation.

"I guess telling your parents that you want to be an artist is almost as bad as telling them you want to be a rock musician."

"Commercial art is basically about problem-solving issues. I bought myself a lot of freedom when I realized that there wasn't just one way to interpret."

Vincent Di Fate writes of Jensen in *Masters of the Infinite*: "[His] impeccably done illustrations are more conceptual than literal and are a refreshing departure from the highly narrative works that now dominate the SF paperback book racks."

Major publishing houses' art directors have kept Jensen busy providing cover art for Bantam, Berkley/Ace, Tor, and Del Rey. His peers and fans have also taken notice: He was Art Guest of Honor at Noreascon '98, and has had his work exhibited by the New York Society of Illustrators. He is also an art director with the CBS Evening News.

Born in Indianapolis in 1962, Jensen knew early on that he wanted to be an artist, and his parents were unusually supportive. "I guess telling your parents that you want to be an artist is almost as bad as telling them you want to be a rock musician," he says. "But my parents never freaked out. Always tried to figure out how to help me out. My dad even took me to a comic book art convention, grabbed a comic book artist and asked him to talk to me about the field."

For years, comic books and Science Fiction competed for his attention. "In high school I was always bouncing back and forth between comics and painting. And I was painting my own ideas for Science Fiction. I would take my paintings to SF convention art shows and show them to the pros. Vinnie Di Fate gave me great advice when I was still in high school.

"When it came time for college, I looked at the bios of artists I admired to see where they had studied, and checked out their schools. I literally went around and looked at the art on the walls. Robert McCall had attended Columbus College of Art and Design in Ohio, and John Jude Palencar was a recent grad. That helped to convince me to go there.

"After my junior year of college I decided to test the waters, so I went to the Baltimore World Science Fiction Convention and met David Mattingly, Barclay Shaw, and Michael Whelan, and saw Vinnie again. Everybody was really supportive.

"I was awful single-minded when I think about it now. I wanted to get the technical skills down. As soon as I got out of school I moved to New York and took my portfolio around. I was getting book covers—but it was slow at first, so I got into TV, and learned computer stuff back in the eighties."

His early immersion in the newborn medium of digitalized art has left him at ease with computer tools, if a bit ambivalent about the spread of their use.

"In principle, I think digitalization is a



ABOVE: Pat Cadigan's *Tea From An Empty Cup* allowed Jensen to bring Asian influences into his work. OPPOSITE: Actual watch parts were incorporated into the image for *The Diamond Age* by Neal Stephenson.



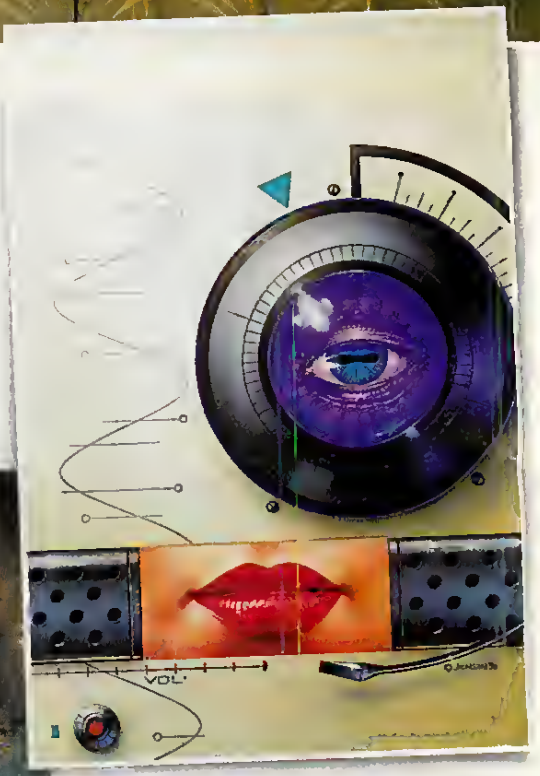
good thing and helps people who aren't as technically skilled but, after all, a lot of painting is about acquiring the technical ability. You can bypass certain learning curves but I don't think you can bypass creativity. So we're in the midst of a big artistic experiment.

"At the time I started working I was happy to be using a new approach. I would paint from computer sketches, using them as roughs. But digitalized art has gotten kind of familiar. Now people get a software update or new filter from Photoshop and it might be neat, but if everybody gets it, it's almost like a style virus infecting the field. Anything that's overdone loses its impact.

"That said, I do think that people like Dave McKean and Rick Berry really do digital art well."

Jensen's own airbrush and acrylic paintings frequently combine digital imagery and hardware. Although





many of his assemblage paintings are *trompe l'oeil*, his cover for the book *The Diamond Age* literally incorporated watch parts into the work.

"Usually I paint all the element as if they had been assembled," he says, "but *The Diamond Age* cover was an actual mixed media construction. Clockwork gears are an image taken straight from the book, evocative of the Victorian period revival, and of the nanotechnology central to the plot. I then used the gears and wires as a framing device for the central image which was rendered on a computer."

Among his influences are Richard Powers and Michael Whalen. But he also loves the assemblages of Joseph Cornell, the juxtapositions of Rene Magritte, Yves Tanguy, Giacometti, and the modernists.

"Sometimes I'm just doing a Science Fictional variation on the early 20th-century modernists and surrealists."

He describes his illustration process as part collaboration. "It's like improvising on a theme—the author's theme. I read the book, then put it aside for a few days because I've found that I'm always a bit too dazzled by it at first. Then I make some lists of images and ideas. It's a strategizing kind of thing. My artistic considerations are separate from the book: color or no color, texture, use of the title, etc. I like to link the title to the image whenever possible."

Next come thumbnail pencil sketches. "All of my final sketches are done in digital media to finish the color. The computer's handy for pushing things a level beyond. You can imagine something and then try to execute it. It allows you to play with certain imagery, experiment without damag-

ing. It's like a painting medium that's always dry, but it's also always wet. You can always move things around."

In Jensen's painting for *Forever Peace* by Joe Haldeman (Berkley), contrast rather than color does the work, pulling attention to the white wings of the dove in the center of the composition. This beautiful painting manages to convey a sense of spirit and hope that's unusual for an SF book, avoiding any of the hardware imagery associated with the genre. The painting is a departure for Jensen from the mechanistic imagery and compositional tendencies that he favored in the past.

"For *Forever Peace*, all that was specified was that it had to have a dove for it. I love birds and so I enjoyed that, building on it and making it my own. I'd go out into the city and photograph pigeons for reference."

His use of analogous color can be seen in his cover for *Faraday's Orphans* by N. Lee Wood (Berkley), where he combines airbrush and digitalized work to evoke an image of a ruined place and time, evoking echoes of the mysterious alien landscapes of Stanley Meltzoff and Paul Lehr.

"For *Faraday's Orphans* I did an inverted—negative image—digitally, and then interpreted it in paint."

Jensen says that he uses airbrush to soften things up and to blend colors. "Airbrush is a necessary evil. Acrylics aren't very blendable. But I don't like to use airbrush for portraits. I prefer sablebrush, to do them by hand."

Although he's illustrated his share of cyberpunk books, he says that he tries to avoid the most overused cyberpunk imagery: mohawk haircuts, neon, "mirror shades," and so forth.

"I hope that I can draw from the book a textural impression, which was my goal in illustrating the cover for *Do Androids Dream of Electric Sheep?* Getting this assignment was truly a gift—I produced more sketches for it than I ever had before for any other job. I'm very fond of constructing ambiguous imagery and what better reason than when illustrating a Philip K. Dick book?

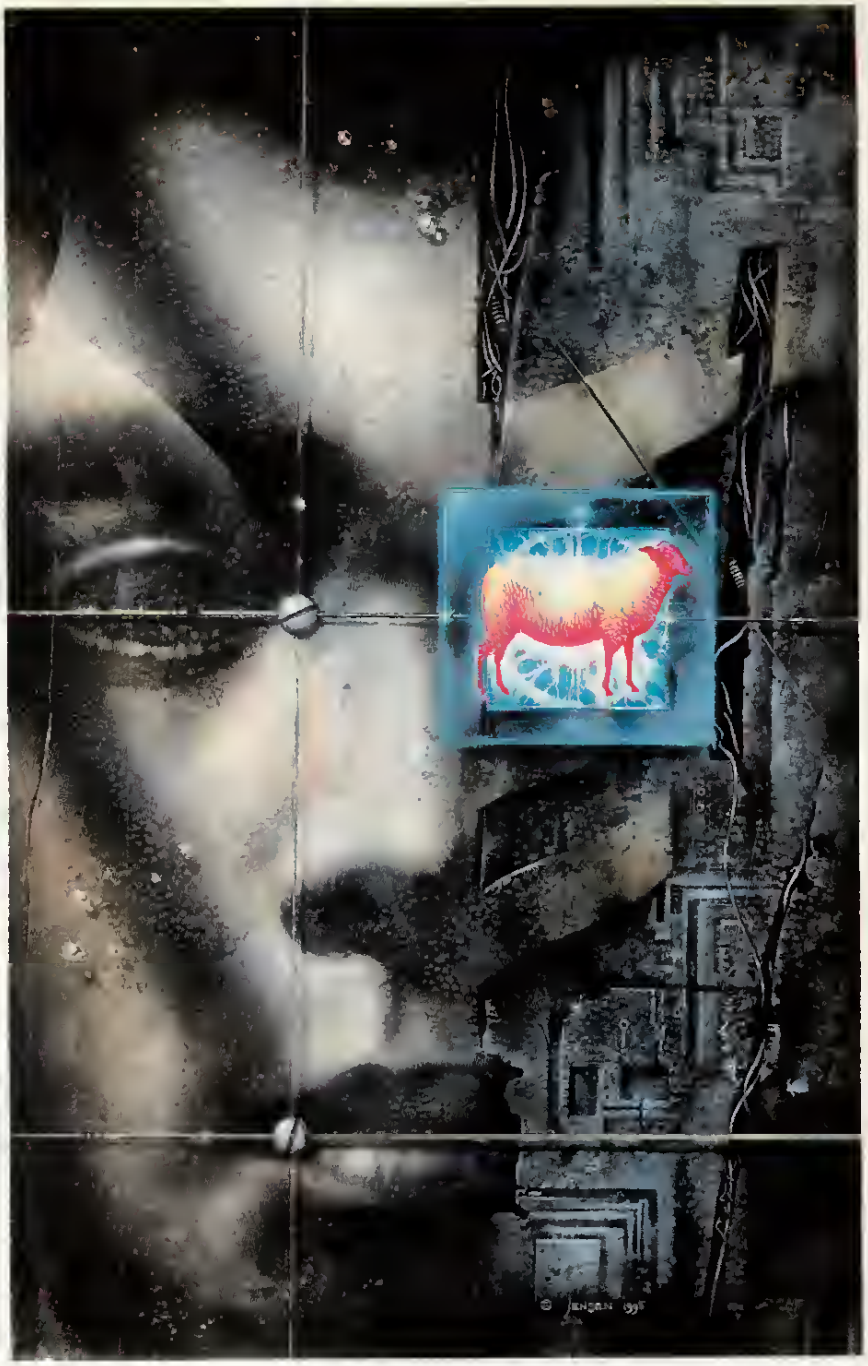
"The coarse textural treatment is drawn from the author's preoccupation with entropic processes. The electric sheep of the title is illustrated as a psychedelic 'painting' within the larger painting. The portrait is intended to remain unresolved as either human or android."

Jensen says that his major considerations when painting a cover are what the publisher needs, what the author offers up, and what he can personally bring to the work.

"It's a challenging time. The art directors and publishers are so nervous now—they're worried about making the wrong choice. But I always like to put something personal in my work. To meet the story halfway but leave something mysterious.

"Sometimes I pull the cover imagery from other unexpected places. All sorts of things seep back in. I like it when people say 'It feels like the book or the ambience of the book comes through.' That's when I know that I've done my job."

For readers interested in seeing more of Bruce Jensen's work, check his Web site at http://www.netaxs.com/~morgana/jensen



OPPOSITE BELOW: *Frameshift* by Robert J. Sawyer gave an opportunity for a different look at genetic engineering. OPPOSITE ABOVE: The artist speaks in an *Alien Tongue* with the cover to the novel of the same name by Stephen Leigh. ABOVE: Jensen reinterprets a classic with a new look at *Do Androids Dream of Electric Sheep?* by Philip K. Dick

SOLE MORTAL THING OF WORTH IMMORTAL

Billionaire Ivan Georg Matusek wanted to live forever. To accomplish that someone else had to die.

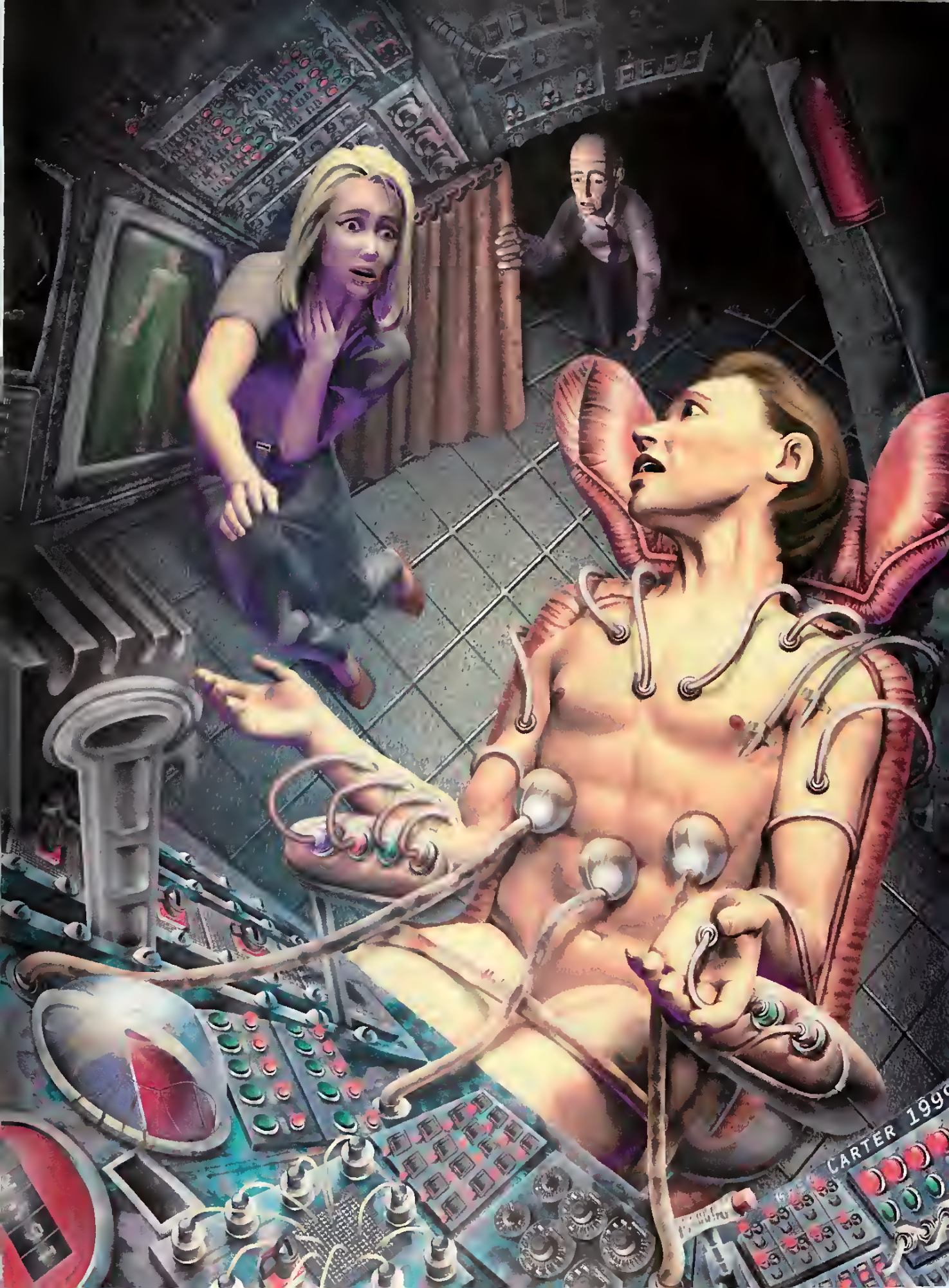
LISA CANFIELD HAD A BRUSH WITH IMMORTALITY—NOT HER OWN—when she went to work for Ivan Georg Matusek.

Early in the first decade of the new millennium, 10 years before he recruited Lisa, the then-59-year-old billionaire was tagged by *Spin* magazine as "Gatescrasher Matusek" because of the damage he had done to Microsoft and its master. Until Matusek's Universal Operating System crushed Windows 2001, the "Beast of Redmond" and its CEO had been the leading economic—if not innovative—force in what J.P. Clive in his history of Silicon Valley termed "the revolution of the virtual."

Ah, *virtual*, thought Lisa when she read Clive's *Fruit to Nuts* in the hot little prison library at Chowchilla. The word's precise meaning eluded her. No implication of *virtue* in it, although—if she recalled her 10th grade Latin at St. Mary's—both words shared the root meaning of *vir*, of manly power. But things virtual had always seemed to her to be, well, powers without substance, like stage illusionists sawing up women, like the intellectual flummery she'd encountered at Stanford biz school, like the criminal con game she had found herself inadvertently playing.

BY ROBIN WILSON

ILLUSTRATION BY GREG CARTER


CARTER 199

"It's like SEX. When it's and when it's bad ...

All the same thing: guys being *virile*.

Men playing with reality.

She remembered when she and Harley had gotten beyond the simple good sex and the fun and she knew she was falling in love with him, fighting it, reluctant to surrender her psyche—armor-plated with realism—to anything romantic, and once when they were locked together in post-orgasmic haze, he had mumbled something about her beauty, about her sexual enthusiasm, about her success in the computer industry, how she had it all.

"Balls," she had said. "I'm 31, unmarried, and childless, and probably gonna stay that way, unless taking you up on your proposal will do for the family part of it."

Harley shrugged as best he could within the tangle of limbs and bedclothes. "So OK. You got me in the palm of your hand and silicon in your blood."

"Where I got you right now is nowhere near the palm of my hand and as far as silicon goes, there's none in my blood. Don't have any in my boobs either. Only place you'll find silicon is in my hair, from busting up through so goddamn many glass ceilings."

LISA HAD READ CLIVE'S CHAPTER ON MATUSEK ALONG WITH EVERYTHING else pertinent she could find in the tiny prison library in order to prepare herself for the job she hoped awaited her discharge. She had worried about finding employment; she was damaged goods. She had devoted herself entirely—or, after Harley came along, almost entirely—to her career. It had toughened her and enlightened her and brought her 15 years of increasingly responsible management jobs. She had fought her way up the corporate food chain in one after another of three substantial Silicon Valley firms, eating more often than being eaten, going from human resources to procurement to finance to plant management, rising finally to operations VP.

But she knew it would all add up to nothing when the final line in her resumé reported her felony conviction under Section 182 of the California Penal Code, "Conspiracy to obtain money or property by false pretenses ... with fraudulent intent."

And then a month before her June discharge date came the proposition from Matusek's agent, a dark, skinny man named Graust who, when he grilled her, bullied her as roughly as the Santa Clara County Assistant DA had. They were two more guys to add to her roster of what was, she had told Harley—back five years before their arrest, on the drive back from their Reno marriage—her lifetime list of outstanding TTs.

"TTs?" Harley was good-natured, drop-dead handsome, ageless, a creature of the 'nineties, tooling the little Subaru convertible down mountain roads from Tahoe as if he and the car were tango partners. Then 35, he still exhibited much of the sun-bleached surfer he'd been, and he looked positively juvenile when he was struggling for understanding, which was not infrequent.

"Yeah, TTs. The assholes I call Testosterone Tyrants."

But she endured Graust's inquisition just as she had toughed out Chowchilla. If she could sell herself for the job, she would take over the management of the fabled Matusek personal laboratory and country retreat tucked back into a canyon high in the Santa Lucia range east of Point Sur. One drawback was a minimum commitment of five years at the option of the employer, but the pay was good, the isolation ideal. It would be a place to survive, to heal, to reorient herself after a career, a marriage, a life had crashed and burned. Then she would see about the fast lane again.

And so when the offer came she did not hesitate, and Graust left the visitor's room at the Category I barracks at Chowchilla with her name on a contract bound up in concrete, steel, and every other hard thing he and his master could think of, including just enough diamonds—there's more silicon for you, Lisa thought—to make her accept, ah—another bit of irony came to her—what amounted to virtual slavery.

A YEAR AFTER SHE HAD TAKEN UP HER NEW POST, LISA LEARNED ONE Tuesday in June that Gatescrasher Matusek would crash nothing more. What his attending physician and partner in one of several lines of research, a thumb-snapping, impatient, 50-year-old, Friar-Tuck-of-a-man named Leo Starnes, MD, PhD, FASN, described to Lisa on the satphone as "a textbook, hell, a *beautiful* manifestation of *glioplastoma multiforme*"—octopus tumor—was slipping its busy tendrils into every lower spinal cell within its mushrooming reach. Starnes' diagnosis was a sentence without possibility of parole, with at best six painful months to go, Matusek would be dead at 70.

"But what the hell, Leese," Starnes said. "It's what we all been planning for."

"How'd he take it, the news?"

"Like everything else happens to him. That look he gets? Could have been I told him what they were serving for lunch."

Lisa could imagine the scene. Starnes with video graphics on the screenwall, an NMR printout in hand, explaining. The old man at his desk, a slight lift of one eyebrow in his wasted, hard-eyed face, a shrug of his once-broad shoulders now bent, the iron control of a man who had never found intimacy, had never sought it.

"NO POINT IN FARTIN' AROUND ANY LONGER," MATUSEK HIMSELF SAID to Lisa when she entered his office the Wednesday after Starnes' verdict. She had obeyed his summons and driven up to his Post Street corporate headquarters from Big Sur. The San Francisco fog was summertime heavy with eucalyptus and diesel, temperature in the low sixties even at noon, which was when she handed her BMW clicker to the valet parker, answered his query with "Yeah, top off the batts," and made her way through the elaborate security of the Nano-Dyne lobby and up to Matusek's monasterial 10th-floor office. Sparse, utilitarian furniture on a gray carpet, gray walls, arched floor-to-ceiling windows with gray pressing from outside, a single cold fluorescent desk lamp the only other light.

Matusek did not rise to greet her, waved her toward a client's chair. "No point at all," he continued. "It's time. I was hoping for a couple more years, give the, ah, host a little more time to mature, but ..." The shrug. "They tell me it's big enough."

He hunched forward across his gray desk to shorten the space between them. "So get the staff ready. Make sure there's backup power for the OR. Remember, we got this window, minimum 30 days, with nothing coming into the place—no food, people, equipment, mail, *anything* that could vector any kind of organism. And the OR itself's gotta maintain full BSL-4 containment. Likewise the recovery area."

He paused, his body motionless, his startlingly blue eyes fixed on hers. Only after she nodded, a single, brief bow of her head, keeping eye contact, did he continue. "I want you in constant touch with Starnes. Minute you find out he or any of his surgical staff need anything, you get it. And button up security. They'll be bringing the host down sometime Saturday afternoon and getting it stable, and when I come down next week, we'll do it and that'll be that."

Lisa nodded again and wondered why he had ordered her to make the three-hour drive to instruct her in things she already knew, had

GOOD, IT'S VERY, VERY GOOD, IT'S NOT SO BAD."

spent a year practicing. What was wrong with the secure satphone?

He answered her unspoken question. "This is the last time you and I will talk when—" He paused, sat back upright in his gray desk chair, and inhaled deeply, hugging himself within his folded arms, a sign of emotion that surprised Lisa. "—when I'm still in this. Next time, we get some luck, you'll recognize me all right, but I'll sure as hell look different."

He leaned back in his chair. "If I don't get lucky, then we won't meet again. I've invested 15 years in this, spent a lotta bucks recruiting good people, people who owe me, but I've been in business too long to put many chips on the loyalty card. So I want you to know and pass the word to the rest of the staff: I get lucky, you all get lucky. Graust and the lawyers'll make payments of a half-million on up to everyone on your staff, trust accounts, payable as long as they keep their mouths shut. Another two mil for you, and three for Starnes on top of the cash for his people.

"Understood?" he said.

"Understood," Lisa said, her only word since her initial hello.

The faintest flicker of a smile warped Matusek's thin lips as he waved her out of her chair, out of the office. "Just make sure everyone knows, no luck, no bucks."

AS SHE SLIPPED THE SILENT BMW aggressively from lane to lane down the foggy, unmonitored 280 freeway to Route 101 and the San Jose bypass, Lisa hummed a tune from the new Lloyd Webber revival and thought about two million dollars. It would mean genuine, honest-to-God independence for the first time in her life. No parents, no classroom nuns, no TTs, no husband, although to give him his due, Harley had not been very, well ... *directive* was the word. Just a little stupid when it came to swimming with the financial sharks, and she had divorced him as much for that as for any incompatibility. No doubt about it, he was cut out to be a lover not a major player. He had been her junior partner in a sweetly undemanding five-year marriage and the managing partner in their brief real estate venture, which—because she had failed to pay it much attention, seen it primarily as Harley's thing and good for him—was the proximate cause of her eight months in the Valley State Prison for Women in Chowchilla, assembling eyeglass frames.

With a year more to do than she, he would have just gotten out of Soledad by now. They had been lucky at the sentencing, the judge slapping the principals with five to ten but labeling the two of them "as much victims as perpetrators," shaking his head. "How could a couple like you *not* know the difference between multilevel marketing and a Ponzi scheme?"

And Harley would now be facing something like what she'd faced the year before. Who would hire a 41-year-old ex-jock, ex-realtor, ex-con?

Ex-husband and lover?

Their divorce had become final just after she'd taken Matusek's offer, and she and Harley had not communicated since, which was, she was sure, a very good thing. He had a way about him. She could hear him, "Hey, babe, let's you and me, you know, get together again." And that would not be good. Or maybe....

She couldn't help savoring that old saying about marriage: "It's like sex. When it's good, it's very, very good, and when it's bad ... it's not so bad."

Oh, I gotta get over Harley, she thought, the monitor drive clicking off as she prepared to switch freeways. She navigated the cloverleaf at maximum speed, enjoying the familiar lean and pull of forces not quite in equilibrium. She thought, I can worry about Harley later, and I better not count my dollars until they hatch.

Hatch. Once again relaxed, the BMW locked anew to the Route 101 system, the word made her think about the host that would be delivered in three days. What would it be like? She had visions of, what was its name? That sheep? Like a dozen, 15 years ago? 1997, she had been just getting started, her MBA fresh, doing H.R. at Infosync in Sunnyvale. Molly? Dolly? Of course, it wouldn't be a sheep. It would be some kind of a, well, a Matusek.

But she couldn't quite accept that. A person? Well, physically, kind of an immature male, like a teenager if it were a person. Whatever it was, it had been growing away up in the woods around Granger City. Developing there in some kind of lab that Matusek and Starnes had built even more remote than the Point Sur property. Lisa knew only what she'd been told when she'd been hired, when Graust knew he had her, could control her because the Matusek job was her last, best chance at another shot at the fast track.

Only after she'd signed the contract did he tell her what she would be managing, how the facility would be used, the host that was growing up there. Which was, she supposed, properly described as the 14-year-old clone of Ivan Georg Matusek, ready to be prepped for the ultimate transplant: the brain of a dying, cancer-ridden old man into a body that would not reject it because it was biologically identical. Only absent the years of wear and tear and that beautiful *glioplastoma multiforme*.

Then what? Lisa thought two hours later, clicking off the Route I monitor line to manual at Big Sur to start the twisting road back into the Ventana Wilderness. Healthy, just past puberty, the host would serve its new inhabitant for another 60 years or so. Another transplant then? No reason not to. Matusek could afford it.

Immortality.

ON THURSDAY A CREW OF TECHNICIANS FROM NANODYNE UNLOADED a truckload of equipment for the containment rooms and then spent most of Friday installing it. Lisa got Starnes' assurance that all was in order before she signed off on the manifest. She did not, herself, have the vaguest notion of what the equipment did.

The host arrived late on Saturday afternoon, delivered in an older, internal combustion van driven by a dark little man with a mustache who spoke little English. He was accompanied by a sturdy, middle-aged Chicana in a nurse's blue uniform. Together they carried the litter into the laboratory and deposited the comatose host on a bed in the especially equipped BSL-2 space that would contain it until the operation. Outside again, the two Latinos parted in a flurry of Spanish, including a cheerful "*¡Chingate!*," go screw yourself!, before the woman returned to the laboratory to look after her charge. Lisa did not speak Spanish, but like most residents of California—now almost 40 percent Hispanic—she had acquired familiarity with what she heard on the street, including some of its coarser expressions.

When she first came to work at the estate Starnes had shown her around, and as they stood together where the access drive swept in front of the main building's portico, he had explained about the Latinos she saw everywhere. "We have hired mostly illegals," he said. "Keep 'em for a little while and then when they've been around long

Lisa had been living the Matusek clone

enough they might pick up on what we're doing, give 'em a bunch of money in a trust account, and get 'em back across the border wall."

He cocked his head southward. "We've gone through a lot of people over the years that way, but it cuts the odds anyone's gonna figure out the project, or if they do, they got good reason not to talk about it, or if they do want to sound off, no one is going to listen to wall-hoppers."

He paused. "And then also the high turnover prevents any, you know, bonding."

"Bonding?" It had not occurred to Lisa.

"Well, the host could be, uh, pretty cute. Specially when it was small."

AFTER A LATE DINNER THAT SATURDAY EVENING, LISA AND STARNES lounged against the railing along the veraudah passageway outside the room marked "Biological Safety Laboratory Containment Level 2." It was a soft June night. Cool, pine-sweet mountain air wafted down around the complex, dispelling the day's heat. They had shared an after-dinner smoke and both were a little light-headed from the hit, comfortably cheerful, as they looked in through the one-way glass wall at the host's sleeping form.

Lisa had grown to like Starnes, a curiously naive man who clearly respected her. One of the few unattached, straight collcagues who had not once come on to her, his mind was totally in thrall to what he called the experiment of a lifetime, seeing no double meaning in the phrase.

"Leo," she said, one foot up on the railing, "you told me once you didn't want anybody spending too much time with the host. *Bonding* was the word you used. But you've been in on this from the start, right?"

"Yeah. But I haven't been much involved in the daily care. The feeding, the operant conditioning, the exercise routines, which got pretty elaborate as it matured." Starnes grimaced. "I sure as hell never changed a diaper. It was all pretty much on automatic after I'd done my tricks.

"Where I earned my keep was in the initial procedure." He moved off the rail to stand before Lisa in the dim light from the glass wall, shaking his round bald head in emphasis. "We didn't know anywhere near as much then. It took a lot to get it started. A lot of samples of Ivan Georg before we started getting viable blastocysts, and then we did about 50 of those before we got 10 that survived transfer into a denucleated egg. And the only one of *those* that made it through the electroshock, we slipped into the host mother where it did just fine."

He pointed through the glass at the supine form under its light green sheet. "And ta da! We got the Matusek clone, ready for the big show."

To her surprise Lisa suddenly found herself entranced by the form under the sheet, its chest rising and falling in quiet sleep. She was silent, staring, confused by her own feelings. Starnes said, "You tired Leese? You want to pull the plug for the evening?"

She jerked her gaze away, startled back into reality. "No, I'm OK..." Her voice trailed off as she stared out into the mountain dusk. And then ... she turned to Starnes. She did not know what prompted the question: "What about the mother?"

"She did fine. Living high on *el puerco* down in Mazatlan."

Lisa shook her head, impatient with herself, as much overwhelmed by her own powerful reaction to the product of the science she was observing as by the science itself. It was by no means her first experience with awe-inspiring technology. And she had been living with the theory of the Matusek clone project for over a year.

But the reality ...

"So what comes next?" she asked Starnes.

"Ah!" he said, "That's the great part, although from now on, outside of some medical services after the deed is done, I'm just an observer. Now it's all up to the neurosurgeon and his guys from Matusek's company, and their nanobots."

"Tell me."

"You really want to get into this stuff? It's pretty technical."

"Dumb it down for me."

Starnes shrugged. "Well the nanotechs will set up and be ready as soon as the anesthesiologist gets Matusek under and the surgeon makes his first cut into the parietal, and then while he's still sawing his way forward toward the frontal, the techs'll start introducing what they call disconnects, maybe a couple of hundred thousand all together, and those'll scurry around, find the junctions they've been programmed for, and, well, disconnect them. Work from the cranial nerves down through the brain stem, stay well north of where the cancer is working."

Lisa shuddered. "Sounds awful."

"Well it isn't. You look at the people with spinal trauma, used to face life in a wheelchair? Watch some of them jumping around like a bunch of hoopsters, you can see what a nifty technology it's become.

"Anyway, after the disconnects, they send in what they call the bundlers. These are the little guys that tidy up and record the information at the junction points they will need to transmit to the connector bots when they put the whole thing into the host's skull."

"Don't they have to, uh, get that ready?"

"Oh, that's done long before. They won't even start in on Ivan until the host skull is empty as a drum, connector bots already in place on its severed nerve junction points, ready to insert a kind of enzymatic stickum, which is the secret of the whole thing, along with the stem-cell therapy that will regenerate nerve tissue."

"And when they're done, Ivan will be ... in the host?"

"He'll *be* the host. If all goes well. If what these nerve choppers and nanotech guys have learned from a lot of human nerve transplants and a couple of animal whole-brainers works."

Starnes grew a little grave, his shoulders hunched as if to ward off cold. "But you never know. There're bound to be some errors, some things don't get reconnected quite right. Maybe Ivan'll have a little trouble with odors, or some muscle control in a leg, or a pain we'll have to go in after down the road."

He paused a moment. "This'll be a first, as far as I know, although I wouldn't be surprised, some Middle Eastern nabob hasn't beaten us to it. No way we'd know, any more than anyone else'll know if we're successful." There was a note of regret in his voice: the papers not delivered at learned societies.

The Chicana in the blue nurse's uniform returned from her supper and joined them at the window. "It's abou' time, Dr. Estarnes. It gonna wake up soon as I star' the nigh' routine."

Starnes nodded. "We'll watch a while, Constanza. OK with you, Leese?"

Lisa said, "Sure," wondering what the night routine consisted of.

Constanza disabled the safety latch and entered the BSL-2 room. Lisa watched, enthralled, as the nurse began to play with buttons on her hand-held controller. Lights came up, bright, colored, diverse, flickering abstractly on the floor-to-ceiling surround video screen that ringed half the room. There were sounds, muffled by the glass: clicks, pings, chimes. The figure on the bed rose, picked up the green sheet from where it had fallen to the floor, and placed it on the bed. At a gesture from Constanza, the clone

with the theory of project for over a year.

stepped lightly to an apparatus of wheels and levers and pedals, inserted itself, its face a yard back from the one-way glass, and began rhythmic exercises of great complexity. It was nude. It had a sweetly innocent expression that reminded Lisa of Harley in sleep, but with Matusek's blue eyes, and a hint of what would someday develop into Matusek's rugged brow and angular cheeks. A wisp of golden hair shaded the chin and upper lip. It was a healthy, muscular, well-developed, teenage boy near full growth. It was, to Lisa, nothing short of beautiful. She was not sure if her feelings were maternal or erotic. She was not sure she understood the difference.

"It's had a lot of years of this sort of thing," said Starnes. "Minimum contact, no more modeling than we can avoid, but all the conditioning we can give it, sensation-rich environment, maximum development of the somatosensory cortex and, what's a lot more important, the nerve bundles serving it." He grinned, the after-dinner smoke still enhancing his cheerfulness. "Ultimate goddamn Skinner box."

Lisa shuddered involuntarily. "It's like a parakeet with rings and bells in its cage."

Starnes shrugged. The figure in the exercise machinery slowed and made a mewling sound, shaking its head and then looking away, back over its shoulder. Constanza held the controller out as if she were changing video channels and a red light flickered on it. The clone jerked and mewled a brief, high-pitched scream as it once again faced forward and resumed the rapid pace of its exercise.

"What's that?" said Lisa, fearing the answer.

"Little jolt they can give it, it starts to goof off, doesn't eat when it's supposed to, takes a crap on the floor, whatever."

LISA COULD NOT SLEEP. SHE WAS OVERwhelmed by a tsunami of emotion, as if the catastrophes of the past two years—her fall from great expectations, her fall from love—were newly presented to her, unresolved, unrationalized. Her eyes suddenly wet, she wondered if it could have been different. What if she had married Harley right out of college instead of 10 years later? If they'd had a child, it would be about the age of, ... What would it have been like, that child of the unrealized past? Probably not very different from the Matusek clone.

Clone? My God, she thought, it's a child! A boy! A beautiful young man! She thought about the emptied skull.

She thought, We can't do that! I can't do that!

She wished Harley was with her. He was probably working in a surf shop, giving lessons, selling gear.

What if they stole the boy? What if she called Harley up? Said, hey Harley, how's about you and me, we take on this kid, raise him? It'll take a lot of doing, a lot of making up for a missing childhood, but we can probably do it. What do you say?

She could hear Harley in her imagination. He would say, Sure, Leese, Cool. I'll get over there quick as I can, load up the kid, take you guys somewhere.

Ah then, Lisa thought, as fitful sleep came, of course we can't, but that would do it.

In an hour she woke again and got out of bed, her emotional turmoil unabated. Utterly gone was the hard realism that had seen her through her years in the world of the virtual. She slipped into jeans and a shirt and made her barefoot way down the dark hall to the back stairs, down the stairs to the verandah fronting the lab and the containment rooms. The lights in the BSL-2 were still flickering away. The clone, still nude, now sat at a low table and ate with its fingers from a bowl of gray cubes. Constanza was not in sight.

Knowing she shouldn't but driven by she knew not what, some need to make *contact*, Lisa turned the safety latch, slipped into the BSL-2, and stood in the pinging and clicking, her back to the door, an arm's length from the seated figure. It looked up at her, its jaws busy, the face smooth, impassively serene. No smile or frown or wrinkle of the forehead or contraction of eyebrow, the eyes two great blue pools.

The clone swallowed and stood, a smooth figure from a Grecian urn.

Lisa said, "I know you can't understand me, but we've got to...."

The clone took one step and more swiftly than she could have imagined, its arms were around her, its teeth were clamped at the juncture of her neck and left shoulder, and she was falling heavily to the floor beneath it. She squirmed and rolled to her right as far as she could, the teeth still pinning her, and she felt and then saw the clone's erect penis, glistening, thrusting at her hip.

"*¡Ay, Dios mío!*" Constanza was back in the room, her controller extended, its red light blinking. The grip on Lisa's neck ceased. The clone rolled whimpering away. Lisa sat up, blood dripping down her shoulder, down her left arm.

"Miz Canfield, djou all righ'?" Constanza kept her clicker pointed at the clone.

Lisa stood, shaky, her right hand pressed to her neck. "Yeah, I'm OK. I shouldn't have ... It's just, you know, he's so ..."

Constanza nodded, keeping her eyes on the clone. "Djess, I know. This thing, it is not a he. But it is a he too, at the same time. It have, ah, *las partes*, of a man. And now it is old enough, it, ah, *tiene el culo caliente* ... ah, it is horny."

Now with a paper towel pressed to her wound, Lisa let herself out of the BSL-2. Her last sight through the one-way glass was of the clone, impassive in the midst of its exercise apparatus, arms pistoning, knees pumping, a kaleidoscope on the wraparound screen. The clicking, pings, and tintinabulation muffling with the closing door.

IN SEPTEMBER, WHEN LISA WAS FREED FROM HER CONTRACT AND Matusek, heavily made up to hide the scar and to age him into the credible, had gone limping back to San Francisco, Lisa located Harley through his San Jose parole officer.

On a Friday noon she found Harley at the SurfsUp Shop just off the boardwalk in Santa Cruz, and together they walked out into the warm sunshine to talk. It was the best time of the year along the central California coast. The beach was crowded. Children's shouts punctuated the sounds of surf and carnival rides.

"So Harley," she said, "what do you think? You wanna give it a shot again?"

"Get married again?"

"Sure, or not. Doesn't matter to me. But I'd like to, you know, start a family with you."

"OK, yeah. But I don't make a hell of a lot, doing surfing stuff, and no way are they gonna give me back my broker's license."

"It's all right. I've got some money."

"Great! So what are we gonna choose first, boy or girl?

Lisa shook her head. "I don't think we'll choose. Just take what comes."

"Hey, cool, Leese," Harley said. "Kinda go with the flow." □

Today, memory is a disease for which there is only one cure. Tomorrow, there may be choices.

Faith

BY DON WEBB
Illustration by Janet Aulisio

MASON TREXLER REALIZED AT 10:00 THAT he had once again forgotten to take his memory enhancer. He snuck out of his office. He wanted to be in top shape for his meeting with what's-his-name at 2:00. He would bicycle home and take the two foul-tasting horse pills. His Peugot racer rode like the wind (or at least as the wind was remembered) in the smog-thick air of the city. He zipped up on the sidewalk and his front wheel encountered a half-fist–sized piece of caliche. He went over his handlebars and into an iron stanchion.

He came to in the foyer of the Hazel Motes Memorial Church of Jesus Christ Without Christ. Four questions filled him: Where was he? Who was he? What was he? and Where was the restroom? Brother Michael was able to answer the first and led him to the fourth. There were a handful of people in the church. Brother Michael explained that a communion service was going on. What does the Church of Jesus Christ Without Christ serve for communion? Sugar-Free Caffeine-Free Cherry Coke without carbonation. Nameless Mason Trexler wanted to ask more, but biology intervened and he went through the door marked MEN.

In the dark tiled and echoing coolth within, the nameless Mason Trexler pondered his state. He knew his letters and language. He knew his body's needs. He knew that Madonna was a rock star and John Paul II was Pope. He had some vague knowledge that he preferred bicycles to cars for environmental reasons. He looked at his legs. Bicycle clips. He took them off and forced them into the breast pocket of his pinstriped vest. *Not a bad suit,* he thought. *I must be well to do.* Then he thought of his wallet. Men carry wallets. They are the key to their power. He pulled out his thin eelskin wallet. The driver's license read Mason Trexler. And it had a picture of a pale soulless man with the strongest I-am-not-here expression he had ever seen (of course, he didn't remember seeing any others, but he could imagine). What a ridiculous name. Mason Trexler. It sounded all country and Southern and hick. If he had ever had that name—and he seemed to resemble that man on the driver's license (excepting that he had a soul and it *was* present in the same room as its body)—he didn't want it now. He pulled the license and the AmEx Gold Card and the Visa Card and the library card and his voter registration card from the wallet and tossed them in the green hinge-topped wastebasket. He kept the money. Money means a lot especially when you have no name. He zipped up his fly. And walked out.

Brother Michael was up at the altar helping the minister pass out the Dixie cups full of red liquid. Directly in front of the nameless Mason Trexler was a comely young woman resembling the rock star Madonna. At least Mason was fairly sure that there was a rock star named Madonna. Jesus, he thought.

"Hi," she said.

"Hi."

"Are you the guy Brother Michael found in the parking lot?"

"I guess so. All I remember is the foyer."

"How wonderful." She played with the black satin strap of her black satin dress.

"How is that wonderful?" the nameless Mason Trexler asked. Actually he was feeling pretty wonderful having shucked that name—whatever it was—back in the john. And getting to talk with such a pretty woman. He felt that women like this



weren't part of his past life. Thus feel snakes who are reborn with the shedding of their skins, and perhaps we may partake of their immortality by eating of their long flesh.

"Well, I remember walking in through that steel door and it was a long walk to get there," she said (shifting into testimonial mode). "When I was 13 I was confirmed into the Catholic Church and thought I glimpsed St. Stephen Crown of the Martyrs peering at me through the clouds of incense. And for years I would suddenly smell patchouli no matter where I was. And I took this for the Grace of God. Then when I was 18 my mother made me start doing the laundry. She said, 'If you're going to wear that slutty dress to the prom, I'm not going to wash it for you.' So I was putting clothes in the dryer and I put in one of those dryer sheets. And I sniffed at it. It was what I'd been smelling all along. White Magic Dryer Sheets. That's the Safeway brand. And the next day I walked 10 blocks to the Hazel Motes Memorial Church of Jesus Christ Without Christ and signed my membership card. You want to see it?" Her hand went between her breasts and drew forth a credit-card–sized piece of plastic. Warmed by her flesh, it read "Sister Madonna I go whole hog."

"'I go whole hog'?" he asked.

"Each of us has a slogan that fulfills our needs. When I joined—I joined whole hog."

He wanted to say something clever, but as he examined his mind all he found was pain. He touched his forehead. Oops that was a mistake. People began leaving the sanctuary. Rich and poor. Black and white. A sampling without a bell-curve hump. Most of the rich ones were wearing Coca-Cola clothes. Brother Michael hurried up to him carrying three aspirin tablets and a Dixie cup full of sweet red liquid.

Brother Michael said, "Brother, you look awfully pale."

Nameless Mason Trexler took the tablets from Brother Michael's hand and asked, "Isn't this consecrated or something?"

"Here in the Hazel Motes Memorial Church of Jesus Christ Without Christ we don't consecrate our cola."

Nameless Mason Trexler swallowed the tablets and the sweet red liquid. He remembered having once drunk from his grandmother's hummingbird feeder. *I must have had a boyhood once.* The pain suddenly became intense. He murmured, "Why were all those people wearing Coke clothes?"

"To signify that they are part of the Pepsi generation."

The church began to spin and then it was dark.

They didn't want a crazy woman to scare away their chance for a clean conscience.

COOL GREEN LIGHT CAME SLOWLY INTO focus. There were sounds. Tinny and far away. TV dinner trays blowing down an alley. They resolved themselves into voices.

"We'll have to call him something," said Brother Michael.

"I say we call him Brother Tabula Rasa," said Sister Madonna. "Do you like that name, Brother Tabula Rasa?"

"In the Beginning," intoned Brother Michael, "before the Word was written was the slate."

"What time is it?" asked Brother Tabula Rasa.

"Two o'clock."

He could see the room now. He lay on a dirty brown couch looking up at acoustical tiles painted sea green. Brother Michael sat behind a utilitarian gray steel desk which supported both a pseudo-Tiffany lamp and Sister Madonna. Sister Madonna swung her legs slowly. She had very nice legs.

"We'll have to install you, of course," said Brother Michael.

"Install me?"

"Well, you're a brother of the church now," said Sister Madonna. "We'll have to have a public installment."

"Now that you have a name you'll have to have a slogan."

"I —" said Brother Tabula Rasa.

"How about, 'I erase before I begin,'" suggested Sister Madonna.

"That's very good," said Brother Michael. "What do you think, Brother Rasa? We like to have the cards printed up before the installation." Brother Michael was filling a three-by-five salmon pink card.

"The cards?" asked Brother Rasa.

"You know, with your name and slogan and the address of the church in case you get lost," said Sister Madonna.

"Am I going to have to sell flowers on street corners?"

"Heavens, no," said Brother Michael. "The Hazel Motes Memorial Church of Jesus Christ Without Christ is well endowed, very well endowed indeed."

This disappointed Brother Rasa, who had been looking forward to selling flowers on street corners. It would've been a way of meeting people—really interacting with the world. Plus all that fresh air. But he'd better pay attention and learn about the church. He asked, "Did Hazel Motes endow it?"

"There isn't any Hazel Motes. Or at least there hasn't been. He's a character in a book by Flannery O'Connor. Morton Waxler, a millionaire philanthropist, read about Hazel Motes wanting to found the Church of Jesus Christ Without Christ so he left millions for the cause," said Brother Michael.

"How'd it come out? In the book, I mean."

"I don't know. That's not our concern. You'd be amazed at the paperwork we *have to* deal with. Sister Madonna will drive you over to the print shop."

"Morton Waxler. The name sounds familiar."

"What's in a name, brother?"

Brother Michael handed the pink card to Sister Madonna. She slumped off the desk, grabbing Brother Rasa by the end of this tie. "This way, honey." She led him down the dimly lit linoleum corridors to a small underground parking facility. They got into a white station wagon. Archetypical church car. Sister Madonna said, "You don't drive, do you? Michael said he found you on a bicycle. And even if you did, you wouldn't have a license." She drove out and into the light. "We'll have to get a place for you to stay. You could stay with me, but like the farmer said, 'I've only got the one bed. You'll have to sleep with my daughter iffen you don't mind.'"

"You've got a daughter?"

"No. With me, silly. You *are* a blank slate. I just might write a rude word on it."

They drove past the gray glass highrise where once Mason Trexler had worked. Something cold and nasty stirred deep in Brother Rasa's mind.

"Honey, you're looking all pale again. You're not going to black out again, are you?"

CONNIE TREXLER BECAME A SIREN WHEN HER HUSBAND DISAPpeared. Not a creature of Greek myth that lures sailors to their dooms. A siren that gives a low-pitched note that rises and rises the faster it spins. She missed the warm bed, the shaving bristles in the sink, the corny jokes during the 10 o'clock news. After two days she called the police, who were hateful to her. A day later she called Mason's father, who began as incredulous but later was to develop mysterious theories about his boy's disappearance. On the fourth day she called the insurance. It would take seven years before they would acknowledge Mason's absence. Seven years. She might as well have dropped a mirror.

She cut her lawn. *Her* lawn. She cut her lawn for the first time. The clippings stained her tennis shoes green. Mason's shoes were never green. He must have had a secret. He must have had *plenty* of secrets. Now that she was alone in the world she'd have to develop her own secrets, a magician's lore to get by in any situation. She put the gasoline mower in the portable building in the back. She proceeded to weed dandelions with a pocketknife.

She would never be able to make house payments on her own.

On the sixth day she began to call her friends. She thought she would be regarded as a failure. After all, her man had left her. But everyone saw her as a victim. Marge sent her husband over to mow. The yard didn't really need mowing but the sound of the machine made Connie begin to think that life not only could but would go on.

IT WAS A WEEK BEFORE HE WAS INSTALLED. BROTHER RASA HAD learned the liturgy. Brother Michael had wanted him to live inside the church. They had a small underground room near their parking facility and Brother Michael felt that Brother Rasa should be an underground man. But Sister Madonna had won out and Brother Rasa lived in her two-bedroom split-level yellow brick house in a once middle-class neighborhood. He didn't answer the phone or the door or even read the paper. Which was just as well, for on the day of his installation the paper ran a picture of a man who resembled him.

Brother Michael led the installation service. He said that Brother Tabula Rasa was a man with no Past and no Papers. And word of this miracle spread through the city and people came to see Brother Tabula Rasa. Because there was a rumor that he could take your past away. Not just make all that bad paper disappear, but take all those ugly, guilty things from your mind too.

Another week passed and Brother Michael was ecstatic because more folks were coming to the Hazel Motes Memorial Church of Jesus Christ Without Christ than had ever come in the past. People began to press Brother Michael for a Healing Service. They wanted to touch Brother Tabula Rasa and absorb some of the past-less-ness (or maybe they wanted to leave a mark on him). Some folks talked against Sister Madonna since she was leaving a mark. Something clean and pure like that should've been kept as a church resource.

And Brother Michael came to a decision. There would be a Healing Service. It would a limited, controlled thing. Brother Rasa would heal one or two people of their past. That is supposing he could do so. And those people would have to be carefully chosen. People with real past problems. Nasty pasts that squeezed them out of present time.

CONNIE TREXLER HAD BEEN GIVEN OVER TO CRYING JAGS SINCE Mason disappeared. Some folks were real understanding and everyone had been, well, so *nice* now that Mason was gone. Everyone except Mason's boss who suggested that Mason fled the country in order to avoid a difficult appointment. But Connie had never really known Mr. Wade so he didn't count.

Mason's father Jake Trexler was convinced that Communist agents had spirited his son off to Mexico or Moscow or somewhere. The fall of world communism had always seemed like a ruse to Jake. That Mason's job as a wholesale plumbing fixtures salesman didn't put him on the high priority list for Commie-snatches hadn't occurred to Jake. Fortunately for Connie, Mason's disappearance was an excuse for Jake to pass on a large section of his fortune to her. Mason and Connie had been waiting for the old man to die for years anyway. Connie was sad to see Jake wasting his money on those constant missing person ads in the newspapers. Not that she didn't love Mason, but men run off, it is in their nature. After all, Connie's father had run off and Connie's grandfather had run off before him. You're destined to have your man run off.

Connie sat under an avocado green Buck Rogers–style hairdryer. She always got hers done at Penny's. Now that she'd come into money she was still going to get her hair done at Penny's. The other women watched her through sideways glances while their hands turned unseen glossy magazine pages. They all knew her husband had run off. They all had something to talk about. Something to talk about is always a gift from God.

Mildred came and took the dryer off her hair. Mildred's eyes were wet and gleaming. She always was one for crying for her customers' problems. She said, "Connie, you shouldn't just indulge in your grief. I hear that there's this miracle man in town who can make you forget your past."

"Well I don't know that I want to forget Mason. I just want to forget losing him."

"Honey, don't be silly. If you just forgot losing him, you'd think he's still around. And you'd be looking in your house for him."

"I still don't want to forget."

"You could come with me to the service. You could see."

"See what?"

"See the peace that forgetting brings people."

"Have you forgot?"

"I've never had nothing worth forgetting. That's why I work here, to share the ups and downs of my customers."

Connie suddenly felt sorry for this woman who had previously been transparent. "I'll go to the service with you."

MILDRED DROVE AN OLD BEAT-UP RED BUICK. It could not obtain more than 45 miles an hour and its air conditioner had been gone so long it wasn't even a memory. By the time they parked in front of the Hazel Motes Memorial Church of Jesus Christ Without Christ, Connie's fiery red hair was plastered to her scalp and forehead. They struggled in. There was a hot, pulsing crowd. A crowd full of fear, excitement, and disbelief. They stood in the hot aisle. Some of the people up front looked to be drinking red soda pop. A slutty woman banged on a tambourine. A balding middle-aged fellow approached the pulpit.

"The time you have been waiting for is here. Brother Tabula Rasa will go among you looking for the worthy recipient for his memory-cleansing power."

A thousand voices proclaimed their worthiness. *This has to work,* thought Brother Michael. *God can't let us down on this one.*

"Be still," he said, "Be still or Brother Tabula Rasa will not pass among you."

And the crowd was still save for the gentle swish of hundreds of handheld fans. Brother Tabula Rasa stepped up from behind the pulpit, where he had somehow arranged to be hidden from the crowd. He stepped off the dais, and the crowd parted before him. He walked down the central aisle. Before he was even halfway there Connie recognized him. "Mason, Mason." Everyone shushed her. They didn't want a crazy woman to scare away their chance for a clean conscience. If they had had stones they would have stoned her.

Brother Tabula Rasa continued down the aisle. When he saw Connie he stopped. Something dark and cold rose from the darkest part of his brain. He raised his right arm and pointed: "You."

Connie stood still for the briefest possible moment, then she said, "Nothing. I know nothing."

And the crowd shouted its approval for the miracle. □

for George Alec Effinger

By Eric T. Baker

Even people who hate video games love *Half-Life*, a unique first-person shooter.



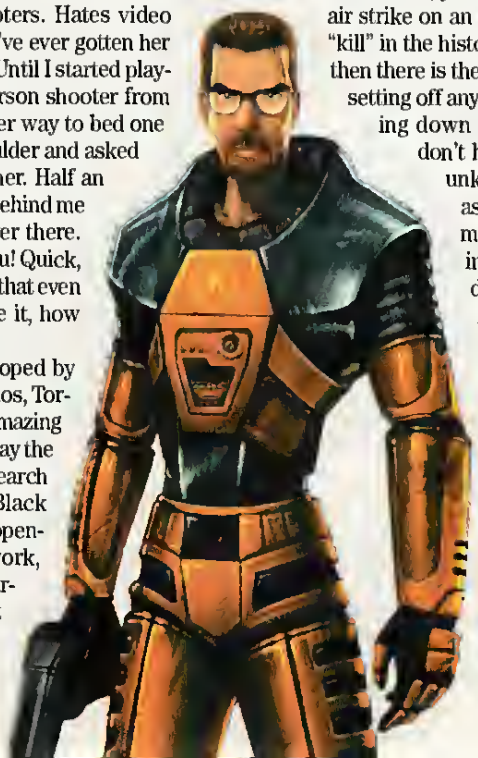
As Gordon Freeman (lower right) in Half-Life, *you must battle not only unleashed alien horrors (above) but also the army sent to stop them (inset).*

IF YOU'VE READ MORE THAN ONE OF MY COLUMNS, then you know the sort of video games I like best are first person shooters. They are quick to start, easy to play, and they let me unload a lot of aggression in a harmless manner. My wife, on the other hand, hates first person shooters. Hates video games period. The only game I've ever gotten her interested in was video poker. Until I started playing *Half-Life*, the new first person shooter from Valve and Sierra Studios. On her way to bed one night, she peered over my shoulder and asked what was going on. So I told her. Half an hour later she was still sitting behind me saying helpful things like, "Over there. No, left. Quick, he's shooting you! Quick, quick!" When a game is so good that even people who hate the genre like it, how can you go wrong?

The plot of *Half-Life* (Developed by Valve, Published by Sierra Studios, Torrance, CA. for Win95, $30) is amazing for a first person shooter. You play the role of Gordon Freemen, a research assistant at the top secret Black Mesa Research Facility. In the opening sequence you report to work, and during the first level you participate in the accident that unleashes an army of alien horrors into the facility. Only at that point do you finally pick up a crowbar and begin to fight. Your first objective is to reach the surface, but along the way you learn the army is coming to rescue you. So immersive is the game that by the time you've fought your way up three levels to make contact with the army, you really do feel betrayed when they start shooting at you too. It turns out their orders are not to rescue, but to sterilize. The rest of the adventure is a three-way war between you, the aliens, and the army. The best moments are when the aliens and the army can be left to fight each other.

Like *Sin*, which I reviewed last time, *H-L* is built using the *Quake II* engine. It has been tweaked for a different color range than either *Quake* or *Sin*, but it is the story and level building that sets *H-L* apart from either of those games. There is only one level that approached boring, a *Tomb Raider*-ish mishmash of conveyers and pools, but every other had a nice balance of deadly horrors to fight and sensible obstacles to overcome.

Despite the ugliness and variety of the aliens, it is the army soldiers that make *H-L*. They are mean. They will hide around a corner and instead of coming at you like good little targets, they will just toss grenades at you. All day if need be. They talk to each other over their radios, announcing your position to other units. On some levels they have tank support; on others air support. (At the end of one level, you use an army map to call down an air strike on an alien "boss"; perhaps the coolest "kill" in the history of first-person shooters.) And then there is the entire building they mine so that setting off any one mine brings the whole building down on you. It is not that the aliens don't have their moments. There is the unkillable beast in the silo. Frying his ass was one of the most satisfying moments I've had in a video game in a long time. And yet, with the soldiers, it gets personal in a hurry. *You're* mad because they should be on your side, and *they're* mad because you keep killing them. By the middle of the game, they are spray painting graffiti on the wall, promising you a violent death.



My only complaint is that the shotgun is sort of dorky and the MP5 silhouette isn't actually of an MP5. And they still haven't put in the "pull up" command in the *Quake* engine. Lara Croft can do it; why is it that no first-



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person shooter hero can reach above his head and just pull himself up without having to jump onto everything?

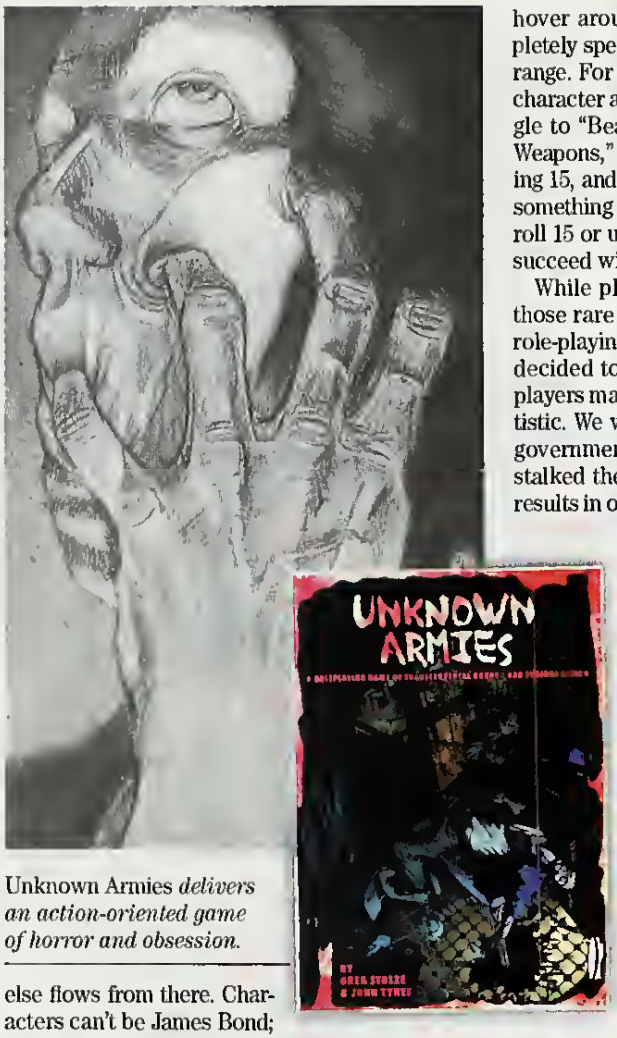
If you love first-person shooters, then you probably already own *Half-life*. If you don't like first-person shooters, or if you've gotten tired of them, then it is time to give them another try.

Atlas Games' new role-playing system of "transcendental horror and furious action," ***Unknown Armies*** (by John Tynes and Greg Stolze. Atlas Games, Roseville, MN 1999 224 p.$25), is easily the most "adult" set of rules I've ever read. If I was going to run a campaign based on *Pulp Fiction* or the sort of hard-boiled fiction that inspired it, then *UA* is the rules set I would use. It is a game where the system leads to scenarios that are driven by the characters' internal obsessions rather than by the external demands of the plots. The characters generated by *UA* seem truer to the real, everyday world than do those created by other systems. The rules allow the focus of campaigns to be placed on the internal lives of the characters, rather than on just their external accomplishments. Characters' personalities grow and change in *UA*; the system leaves them no choice.

John Tynes doesn't believe role-players should not be rewarded for behaving like sociopaths. Greg Stolze used to work in a center for emotionally disturbed women. These two factors combined to make the rules for mental health the most detailed in the *UA* rule book. Sure your character can take the D&D approach and kill everything that gets in its way, but in *UA*, the character will have to pay the mental cost of that behavior.

For example, there is a section on "Point-blanking," which is their word for killing a helpless foe. It is a level 7 violence check, on a scale where level 1 equals being attacked by a weapon, level 4 is killing someone in a fight, and level 10 is watching someone the character loves being tortured to death. If the character succeeds with the check, it gets a "hardened notch," meaning it won't have to make a violence check if the level is below its number of hardened notches. If the character fails the check, it gets a "failed notch." Five of those and the character gets an official mental illness: phobia, philia, delusion, addictive behavior, whatever fits. There are five mental scales: violence, the unnatural, self, isolation, and helplessness. Characters can collect hardened and failed notches in each. Spend enough time around spooky, violent shit, and your character can become truly screwed up. Which may make him more or less fun to play, depending, but at least seeing all that shit actually has an effect.

UA includes an emphasis on group play. It is not a game for generalist characters and invincible ones are impossible to create. The second thing you do in character creation, right after you pick the character's personality type, is choose its obsession. Everything



Unknown Armies *delivers an action-oriented game of horror and obsession.*

else flows from there. Characters can't be James Bond; they can't be good at everything, or even capable at many things. Players are meant to design their characters together and build a group that supports one another, the blanks in one character covered by the skills and abilities of another. If you look at the sample characters in the back, none has more than 14 skills. Even the NPCs, many with quite a bit of experience, seldom have more than fourteen skills. They tend to just be better at their obsession-related skills than starting characters can be.

While not as detailed as the mental health rules, the rest of the *UA* engine is simple but effective. Characters have only four statistics: Strength, Speed, Mind, and Soul. You get 220 points to divide between them. Maximum of 70, minimum of 30. Each skill is governed by a statistic, and the points you have to spend on skills for that statistic are equal to the value of the statistic. To succeed with a skill, you have to roll under it on percentile dice; dice that roll from 01 to 100. There are eight skills (two for each statistic) that the character starts at 15 in just for having successfully become a grown-up in the modern-day world: Struggle, General Education, Lying, etc. You can rename those basic skills (General Education to Forensic Science for instance) and add to the base 15 points. Still, since most of your character's statistics hover around 50, you have to completely specialize to get a skill in that range. For example, you could give a character a 70 strength, change struggle to "Beat Up People with Found Weapons," add 55 points to the starting 15, and still have 15 points to buy something else with, but you'd have to roll 15 or under for your character to succeed with that skill.

While playing *UA*, we had one of those rare moments in the annals of role-playing where all the characters decided to be smart. All four of the players made "Mind" our 70-point statistic. We were the smartest group of government agents that has ever stalked the planet. With predictable results in our other skills. We actually had little trouble buying our skills under the other statistics, but where we felt really cramped was trying to buy all the mind skills we wanted. My character had four: Notice, Surveillance, General Education, and Authority. Notice and General Education are the free skills, so that is 100 points between four skills. Notice was the character's obsession skill (on any roll of your obsession skill, you can "flip flop" the dice, changing a 75 to a 57, for example) and his best at 45, which tells you how low the others were.

Our group was not as balanced as it might have been, but it ended up being quite effective because we played government agents. Having the law on your side is an enormous equalizer. For instance, at one point we needed to get into a room in a hotel. None of us had Lock-picking, so we just sent the FBI agent character over to flash his badge and demand the key from the manager. The manager was happy to oblige. (It helps that we have a good GM. Good GMs don't run scenarios that demand skills the players don't have or can't work around.)

The other way that working for the government helped was that it let us carry guns. In *UA*, guns will kill people. If your character pulls a gun on someone, it is not time for them to start adding up their dodge skill and measuring their initiative against yours. It is time for them to decide if they want to do what you are asking, or if they want to die. Or if you have the nerve to pull the trigger. The question of nerve actually comes up in *UA* where it would not in so many other games. Killing someone in a fight is a level 4 violence check and (as I said earlier) killing a helpless character is a level 7. If you roll badly, your character could go crazy killing people without ever getting hardened to it.

Which is the authors' point. Doing desperate, violent things while running up against desperate, unnatural phenomenon should not leave a character unchanged.

While the mechanics and tone of *UA* are both brilliant, the background is a harder sell. Tynes is a horror writer, and he has given *UA* a horrific and original background. It is the originality of it that narrows its appeal. If they haven't read the rule book, most of the players' assumptions about how the world really works are not going be true. Sorcerers (called "dukes") don't get their powers the way you'd think if you've read a lot of role-playing games, the magic menaces you're afraid of aren't what you should be afraid of, and by following certain paths people can not only gain magical abilities, but also affect how the world will be reborn the next time around.

The magic system is the reverse of what gamers are used to. Usually, the "charge" that lets the magic happen is easy to come by, but the actual casting of the spell is tricky. Even if the spell doesn't work, you lose the charge. In *UA*, charges are very hard to gather, but spells are pretty easy to cast and you don't lose a charge unless the spell works. For example, Epidermancers get their charges from being hurt. The bigger the hurt, the bigger the charge. They use those charges to command their own flesh and that of those around them. They can heal and warp, create and kill. Cliomancers are tuned into history and get their charges by visiting famous places. Their spells let them affect the collective unconscious, learning and planting information about and against their targets. And so on.

The story of the Invisible Clergy and the Archetypes and the Godwalkers is even odder, but in game terms, there is room for 333 archetypes in the Invisible Clergy. If a character follows the path of an archetype, keeping its attributes and avoiding its taboos, then that character will start to take on the powers of that archetype, using them without having to generate charges like a sorcerer would. If the character follows the path really really well, they could end up ascending to the Invisible Clergy and thus earning a say in what the world will be like when this one ends and the next one begins. Until they ascend, though, they will be able to do things like open locks, travel long distances in impossibly short times, flip flop mental stress checks or combat roles and so. Each archetype has different powers and they earn more as they go along. Stolze has called this re-inventing character classes, but it has the important difference that your character doesn't have to be a godwalker. If your character isn't interested in that sort of transcendence, then it can just be a normal person. Or as normal as people get in *UA*.

Unknown Armies is a brilliant game, but it has its flaws. For instance, it is so well written that you are likely to be actually playing before you realize there is no movement system. There is a turn system and an initiative system, but nowhere do the rules address how far a character can move during a turn, or when they would do so relative to anything else they might be doing. Also there seems to be some sort of disconnect between what your character's score in a skill means in game term and what you actually need to roll to accomplish something. For instance, a 50 in struggle means that your character has a black belt with all the knowledge and respect and experience that implies, but when the character is in combat, actually swinging, he is still going to miss half the time.

That said, it is hard to get hung up on what is missing from *UA* because what is there is so good. For example, here is my favorite paragraph from UA:

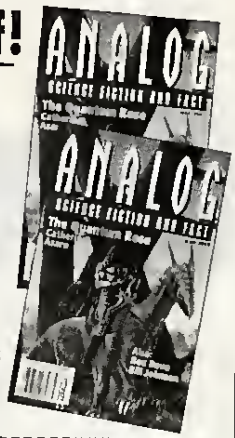
"To attack, once it's your turn in a given round, just tell the GM what skill you're going to use and who you're going to use it on. Then roll percentile dice. You want to roll equal to or less than your combat skill, and given that, you want as high a result as possible. If you succeed, you've just hurt or killed someone. Congratulations."

Games this good don't arrive every day. If you need a break from the programmed treadmill of computer RPGs, or if you want a chance to explore your character's mind the way most paper -and-dice role-playing games only let you explore the character's world, then go down to your local game shop and buy a copy of *Unknown Armies*.

Now that FASA has published the third edition of ***Shadowrun***, moving the setting five years into the future from the original setting date of the first two editions, they have begun publishing adventures and setting books updated to that time as well. ***Renraku Arcology: Shutdown*** (by David Hyatt & Brian Schoner. 1999, 88 pg. $15) is just such a book. Located in downtown Seattle, the Renraku Arcology is the home of 100,000 employees and support personnel for the Renraku corporation. In the manner of the second Edition supplement, *Bug City*, where a magical disaster befell Chicago, the arcology has undergone a technological disaster.

The first 70 pages of the supplement are for players and GMs alike and are presented as a series of net downloads of the scattered reports coming out of the arcology ever since it was sealed off by the UCAS army. The last 20 pages are details for the GMs to use in actually running groups of shadowrunners who venture into the arcology. Runners can enter into the danger zone for a variety of reasons, mercenary or humanitarian, and it is left to the GMs to design the specifics of any scenarios. This is a sourcebook and not a scenario pack. It contains lots of background and information, but no maps and no adventure writeups. It is good if you need a new, whacked, terrifying setting for your runners, but not the thing to pull out if you need an adventure to run that night. □

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MOVIES

Contined from page 28



ABOVE: Young Anakin Skywalker (Jake Lloyd) walks across the Tatooine dunes.

thrown into crisis. Meanwhile, young Anakin Skywalker (Jake Lloyd), the Jedi prodigy who'd grow up to become Darth Vader, is about to embark on the course that will change his life—and the course of the galaxy—forever.

Expect to see a number of familiar faces from the original Trilogy pop up throughout the movie, including a more spritely Yoda (the inimitable Frank Oz), beloved droids R2-D2 (Kenny Baker) and C-3PO (Anthony Daniels), and even a slimmed-down Jabba the Hutt. Also back is Palpatine (Ian McDiarmid), a mysterious senator in this earlier era who'll later become the most dreaded power in the Empire.

Lucas multitasks as *Phantom Menace*'s screenwriter, director, and executive producer; the film is the first he's directed since *Star Wars* in 1977. Joining Lucas in overseeing *Phantom Menace* is producer Rick McCallum, who's spent over a decade working with Lucas on such projects as *Young Indiana Jones Chronicles, Radioland Murders*, and the *Star Wars Trilogy Special Edition*.

Ironically, it hadn't originally been Lucas's intent to do more than one Trilogy of films. In writing *Star Wars*, he says, "I wanted to start in the middle of something rather than start at the beginning, because usually the beginning is boring. Somebody once said the first thing you do when you finish your movie is cut off the first reel, and taking that to heart, I simply did it in the script stage. When I [first] sat down, I had to write a backstory to get to where I was. I wrote several drafts of screenplays and finally got it to a point where I was happy with the story. Then I discovered as I wrote the script that I ended up with a very large script that I couldn't possibly make. So I cut the second two acts off, left the first act on, and wrote the film out of the first act, thinking that if I was successful enough, maybe I could get the next two acts done and make a three-part thing."

While the idea of doing sequels to *Star Wars* seemed a natural, the idea to do *prequels* hadn't even crossed Lucas's mind, initially. "Even though I had this huge backstory, it didn't even occur to me it could actually be set into a movie—until the first film was such a big hit and everybody said, 'How many are you going to make?' I knew I was going to finish the three, and then I said, 'Well, I could go back and do the backstories of these three films, and then I guess I could go off and do a sequel which would be three films, which would make it nine.' That was when I was very young and it seemed like a good idea. After nine years of doing the Trilogy, I decided it wasn't such a good idea anymore, and I retired for 15 years and did a lot of other things. Now I'm coming back to the next nine years, and I don't think I'm going to make it to the third nine years."

The most exciting thing about *Episode I*, from Lucas's perspective, is the opportunity to fully realize his creative vision. "One of the reasons I've waited so long to do the next group is that I needed the technology to advance to a point where I could do the next group," Lucas offers. "The technology has allowed us to create worlds, characters, and events that you just could not create using old technology. It was just beyond us. And now I can expand my imagination to a point where I'm allowed to do some of the things I was hoping to do in the first three films, but was always up against a wall, that this can't be accomplished. Now, a lot of things have brought me back into this with enthusiasm, including the fact that I can actually accomplish things that I've been trying to accomplish for 20 years but never had the magic to do it." According to Lucas, 95 percent of *The Phantom Menace* is digitally enhanced in some way. Virtual sets are the norm, and stunt actors can be replaced by digital images manipulated to simulate the stunt on screen.

That said, the auteur says that he'll never use digital effects to simulate human actors. And the use of digital technology in shooting the films of the future will have no effect on the creative process, Lucas maintains. "The creative side of filmmaking has nothing to do with the medium in which you're shooting the film," states Lucas. "Things haven't changed that much since silent films—you're telling a story and you're creating images. You learn your craft, and you learn the system you're creating your images on, but it's the images that count, not how you got there." □

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SCIENCE

Continued from page 33

DAVIS: Whatever happened to reptilian alien sightings? You don't hear much about them anymore.

LANDIS: E.T. killed them.

DAVIS: In the early UFO days, they were all the rage. I wonder if that ties in with the dinosaur fascination.

SAWYER: A reptilian alien has a harder PR job to do in terms of getting anyone to take it seriously.

DAVIS: I guess they could fit more little ones in a spaceship.

LANDIS: How have dinosaurs been treated in SF? Fairly?

DAVIS: Not in the old movies! They were slow-staggering monsters. The written word has been kinder, I think.

SAWYER: I think by and large, they have been treated well in printed SF. Brett's work, my work, David Gerrold wrote a fine dinosaur novel called *Deathbeast*, Harry Harrison was quite respectful in *West of Eden*, and so on.

DAVIS: We can just imagine them, but Hollywood has only recently been able to afford to show them as we think they are—or were, I should say.

SAWYER: In movies, *Jurassic Park* changed everything.

DAVIS: My nomination for worst dinosaur movie is *The Last Dinosaur*. A hoot from one end to the other. I think it came out in the late 1970s.

SAWYER: We now expect believable dinosaurs on film. *Jurassic Park* isn't all that hot a film, but the 15 minutes or so of dinosaurs in it are absolutely terrific—the best reconstructions ever done inside or outside the paleontological literature.

DAVIS: The *Dinotopia* books are sort of a cross between the printed word and pictures.

SAWYER: The art in *Dinotopia* is absolutely gorgeous, true.

LANDIS: A charming book, but not really a scientist's view of dinosaurs!

SAWYER: I prefer Gurney's U.S. postal stamps, though.

DAVIS: Gurney has a new book, or at least a recent one, called *The World of Dinosaurs*. Very nice.

SAWYER: My nomination for best dinosaur book is *The Enormous Egg*, by Oliver P. Butterworth. Long live Uncle Beasley!

DAVIS: There is a replica of Uncle Beasley at the National Zoo in D.C.! It used to be on the National Mall. The kids loved it.

SAWYER: The paleontology—and the depiction of science at work—is really rock solid in *The Enormous Egg*. Kind of what you'd expect if Greg Benford was a paleontologist and wrote children's books.

LANDIS: Will we keep on seeing new ideas of dinosaurs in SF, do you think?

SAWYER: I keep hearing from editors that dinosaurs are passé, which saddens me. I'd love to write more about them, but the marketplace seems to have moved on. Also, I think we're getting too certain of too much—why they died, how they lived— to allow the latitude required for really inventive fiction. It used to be that writing paleontological SF was a wide canvas; now all the rules are set, and you can't violate anything.

DAVIS: I think, in some ways, the new scientific finds are outstripping fiction. Maybe we need a waiting period!

SAWYER: I'm still always a sucker for a good, new, alternative extinction scenario, though.

LANDIS: Well, I wrote one in which it was time-traveling atomic bombs ...

SAWYER: That kind of stuff is enormous fun. Here are all the clues from the fossil record, and here's that pesky red herring, the asteroid: What better explanation, that still fits all the facts, can a writer come up with? But you see those about as rarely as you see alternatives to big-bang cosmology, unfortunately.

DAVIS: The problem is it might be quickly outdated.



LANDIS: The dino novel as murder mystery.

SAWYER: Exactly! The paleontologist as detective!

DAVIS: Maybe it was a microbe, like *War of the Worlds*. Or the butler.

SAWYER: I think that's what drew me to the profession in the first place—the puzzling out of things. If only you didn't have to do all that damned digging ... I love the tenacity of paleontologists. Even with feathered dinosaurs, we've still got some guys arguing that birds did not evolve from dinosaurs. You've got to admire their stick-to-it-iveness.

LANDIS: Or Bakker still refusing to believe the overwhelming evidence of an asteroid impact.

DAVIS: I admire the breadth of knowledge that goes with these theories. Bob Bakker's warm-blooded dinosaurs lead him to discuss lions and predator-prey ratios, and things like that.

SAWYER: Yes! Paleontology is really multidisciplinary, these days—a point driven home by it being a physicist, not a biologist, who came up with the asteroid-impact scenario. I also love the fact that most paleontologists I know really like SF.

DAVIS: Two D.C.-area scientists helped Gurney with his new book, and were selling them at the last Bucconeer. Great guys.

SAWYER: Michael Brett-Surman and Ralph Chapman, both friends of mine. In fact, I mention Michael in my book *End of an Era*. I've never met a paleontologist I didn't like, though. There's a boyish enthusiasm about every one of them.

DAVIS: Yes. Dr. Thomas Holtz, Jr., too, of the University of Maryland.

SAWYER: Brett-Surman, by the way, does a period survey of professional paleontologists; there's still a lot of dissent over the asteroid-impact hypothesis. But some of that might be not-invented-here syndrome, since it came from outside the field.

DAVIS: Is the warm-blooded thing still going, too?

SAWYER: To some degree. Almost everyone has capitulated on theropods (meat-eaters); but there is some argument that some of the herbivores might not be. And I've heard Phil Currie say that dinosaur metabolism was unique, and shouldn't be shoe-horned into either a reptilian or mammalian model; it was a third thing altogether.

DAVIS: That would not surprise me too much.

LANDIS: There's also the "bulk homeothermy" model.

SAWYER: Exactly. If you're big enough, you maintain a constant body temperature without extending any effort. Which is why the herbivores—the largest dinosaurs—are a possible candidate for not generating heat internally (not being warm-blooded).

DAVIS: In some ways, I think the big herbivores are the most interesting dinosaurs of all. I used to think they were dull, but that tail-snapping thing really brought me around. It seemed to work, too, I guess. Plus, they're just so darn big.

SAWYER: I'm still biased toward intelligence; the small theropods appeal to me most because they might have had some sort of cunning.

DAVIS: Like Troodon? Wasn't that what Russell used as his model for the dinosauroid?

SAWYER: That's right, although back when he did the work Troodon was known as Stenonychosaurus—or more precisely, it hadn't been shown that they were the same thing. I've got Troodons all over *End of an Era*—great creatures! Stereoscopic vision, grasping hands, and the largest brain-body ratio of any dinosaur.

DAVIS: How many dinosaurs had stereoscopic vision? All the carnivores?

SAWYER: Some of the carnivores had partial stereoscopic—depth perception in the center, but none at the sides. Others had full stereoscopic. I can't think of any herbivores that did have stereoscopic vision, though.

LANDIS: Herbivores in general don't.

DAVIS: Seems like it would benefit something like Stegosaurus.

SAWYER: I don't think Stegosaurus could turn its head around enough to see what it was whacking with its tail, anyway. I suspect the reason it was a useful weapon was that the target was so darn big, you were bound to hit *something* if you swung your tail.

DAVIS: Ankylosaurus, too. Put your head down and swing that thing.

SAWYER: Exactly. I wonder why we don't see tail weapons much in the modern world: no supersonic whips, no tail spikes, no tail clubs.

DAVIS: They would seem to make sense. I wouldn't mind having one, some days.

LANDIS: Any favorite paleontologist stories you haven't told yet?

DAVIS: Back in the early days of paleontology, the scientists liked to play jokes on each other. In at least one instance, a field crew put a motley assortment of bones together and hid 'em to try to fool a rival scientist. It's a wonder we don't have some stranger skeletons in the museums!

SAWYER: Whenever I visit a museum, I like to get the back-room tour—one of the fringe benefits of being an SF writer. And I'm always amazed at how much stuff there still is in field jackets, wrapped in plaster and never opened. Some of it goes back decades, and the current staff have only a vague idea of what might be in there. If people stopped finding fossils today, there's still plenty to keep the profession of paleontology going for decades to come ... all stored, like Indiana Jones's lost ark, in storerooms.

DAVIS: I agree, there is a lot of neat stuff still ahead.

LANDIS: So we haven't heard the last of dinosaurs yet.

DAVIS: They may return in their spaceships.

SAWYER: I think the old bones have a lot of life left in them still. □

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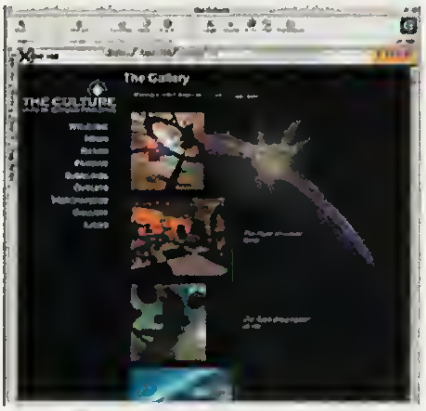
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INTERNET

By Cory Doctorow

THE INTERNET'S ALWAYS BEEN ABOUT getting something for nothing. Production companies give away trailers for upcoming movies, magazines give away excerpts from upcoming stories, up-and-coming bands give away singles. The medium is maturing: With the advent of *Omni Online* and its successor, *Event Horizon*, the quality of the freebies has skyrocketed. Now the bar's been raised even higher, with Francis Ford Coppola's *Zoetrope All Story* magazine, in print and online, featuring free stories by the likes of Gabriel Garcia Marquez, David Mamet, and others: **http://www.zoetrope-stories.com/**.

On the other hand, there's an abundance of material online that one is expected to pay for. *The Goblin Moon*, at **http://www.eggplant-productions.com/goblin/** is a Web-distrib-



uted fiction magazine, available for the nominal sum of $3—about what you'd expect to pay for a small-press 'zine at your local bookstore. What you'll find inside is on a par with what you'd expect from that 'zine: interesting—if amateurish—fiction, questionable typesetting choices, and not-ready-for-prime-time artwork.

Entertainment conglomerates and their consumers have an uneasy relationship. On the one hand, what better sign of brand-health is there than a thriving fan base, avidly producing 'zines, Web sites, slash fiction, and so on? On the other, when all you own is a trademark, it's a horrifying thing to see ham-handed amateurs appropriate that mark and use it for their own purposes. Warner Animation has struck an interesting compromise with **http://www.acmecity.com/**, a site that provides free clip art, server space and Web- and E-mail-addresses to Looney Toons fans. The quality of the fan sites is fairly low at the moment, but the idea is sound. This is one to watch.

Don't get me wrong—fan-built tributes are often on a par with the original material. Check out **http://come.to/TheCulture**, a fan site built to venerate Iain Banks' space-opera



series, *The Culture*. While the quantity of material at the site is a little low, the *quality* is breathtaking. Also available on this beautifully designed site are links, merchandise, and news n' reviews.

The Den—**http://www.theden.com/**—is an entertainment super-site with a huge staff that refreshes the vast store of content therein on a daily basis. Their Science Fiction site, **http://www.dailysci-fi.com/**, is a rich collection of news, gossip, links, and outraged letters.

George Herriman created Krazy Kat and Ignatz in 1916, and the strip ran until 1944, and never lost its wacky inventiveness and spirit of mischief. Many of these strips are gone forever, but the Web is full of Kat-kooks who have scanned what strips they could locate and put them online. Start with the Krazy Kat page at **http://www.wolfe.net/~sputnik/kat/krazykat.html** and go from there.



This month, faithful correspondent Pat York pointed me to the Mars Millennium Project at **http://www.mars2030.net**. The Project is a joint undertaking of NASA, the NEA, the White House, the J. Paul Getty Trust, and others, whose aim is to bring together scientists, writers, and schoolchildren to create detailed proposals for Mars colonies in the next century. □

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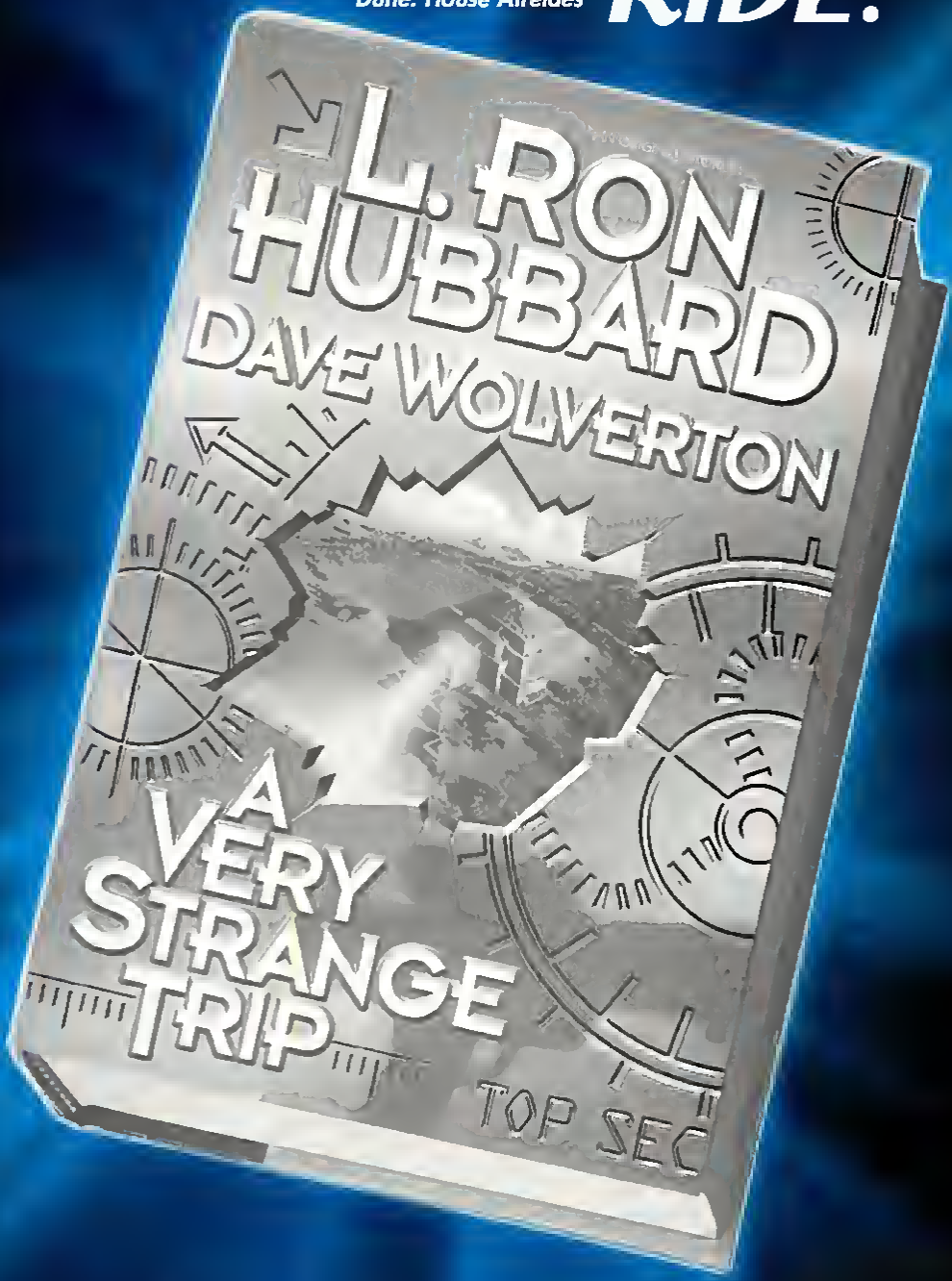
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"A WILD HIGH-TECH RIDE!"

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EXCERPT FROM THE FUN AND FAST-MOVING NOVEL
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From the Preface by Dave Wolverton

A little over 15 years ago, L. Ron Hubbard published *Battlefield Earth*, one of science fiction's best-selling and best-loved novels. It has sold over 5 million copies and the Random House Modern Library reader's poll ranked it #3 among the top 100 English language 20th century novels.

At the same time, he initiated a contest to encourage new writers and call attention to their work, arranging top writers to judge the competition—the L. Ron Hubbard's WRITERS OF THE FUTURE® Contest. It has since helped launch the careers of hundreds of writers who have published 250 novels and 2,000 short stories.

My own involvement in the contest began when I managed a first-place award, then a grand prize in 1987. Just as Ron intended, the award helped launch my career. I received a three-novel contract barely two weeks later.

That award brought something else—what amounted to a collaboration with Ron. Some of us were given a golden opportunity to place our names on a story by L. Ron Hubbard. I was so honored, and found it a fulfilling collaboration.

The story Ron conceived, *A Very Strange Trip*, became a full-length screenplay. What I found intriguing was that it concerned the time-traveling adventures of a young West Virginia moonshiner, who inadvertently purchases Native American squaws.

It happens my grandfather was a moonshiner from West Virginia, and likewise purchased a half-Cherokee wife—my grandmother. To some degree, then, writing this book gave me opportunity to rediscover my personal heritage. Then too, it gave me opportunity to delve deeply into realms of mammoths and dinosaurs and to try my hand at writing comedy.

But there was another aspect that intrigued me, and therein lies something of the L. Ron Hubbard legend. In the name of research, I traveled to the Cahokia Mounds—once home to priest-rulers of the Mississippian culture. What did I discover? Ron had researched these matters to the bone.

I hope you find this excerpt—and the novel—as fun to read as it was for Ron and me to write.



By the time Dumphee got Fugg into the ATV, the lieutenant was looking much better. At least he could hold his head up without nodding so much. But when Lieutenant Fugg took off his hat, there was a huge knot on his head.

Dumphee glanced down at the controls for the ATV. The keys were already in it. He turned the key and hit the gas. The control panels lighted up like something from a spaceship—showing longitude, latitude, elevation, compasses. A little holographic display flashed up on the windshield, showing a map of area roads, all in blue. Another display beside it was marked *Infrared View.* Though rain poured down so hard outside that Dumphee could hardly see fifty feet, the infrared display showed fine detail that the naked eye just couldn't detect.

Dumphee fumbled through the glove compartment, searching for a manual for the vehicle, but didn't find one.

The steering wheel was like the joystick on a plane. By pulling it

back, the front of the vehicle raised just a bit—it used hydraulics to help keep the load in back level while going up-or downhill. A red button to his left was marked *Armaments.* Dumphee pushed the button.

A fifty-millimeter gun swiveled up from a concealed port above the right wheel well, and a small display showed that the vehicle also held two pairs of missiles in launch tubes beneath the chassis. A lighted control panel displayed the options for arming and firing the missiles and guns.

"You're in trouble now, Darth Vader," Dumphee whispered. He imagined the damage he could do if some fool cut him off in traffic, and sort of wished he had something like this at home.

"Well, Lieutenant, where do we go?"

"Denver," Fugg said.

"Yeah, but how do we get there?" Dumphee asked. Then he noticed something odd. As soon as Fugg had said "Denver," a little trail was marked out in red flashing dots on the map that glowed on his windshield. The red dots looked like animated red corpuscles flowing through a vein.

This vehicle had a computer with voice recognition, Dumphee realized. He'd been reading computer magazines at school, and knew at least that much about them. "New York," he said. The lines on the map changed.

"Not New York!" Fugg said, holding his head. "Denver."

The lines on the map changed again, and Dumphee gently put his foot on the gas. His ATV suddenly showed up as a yolk-colored blip moving among the red dots.

"Good going, Artoo," Dumphee said. "Now see if you can lock down those rear stabilizers."

Fugg looked at the map on the windshield. "Ah, geez, my head hurts. Listen, you're the driver. You got the map. So just—you

and Yoda can get us there. Use the Force, Dumphee."

Dumphee tried to take it very easy, accelerating slowly so as not to jar his precious cargo. The engine was so quiet, Dumphee could hardly feel it, and as the ATV began rolling through the compound, it seemed to float like a cloud over the road. The vehicle had an automatic transmission that shifted so smoothly, you could never feel it pop into a new gear.

Outside, the rain pelted down in sheets, and suddenly a burst of lightning flashed through the clouds, snarling. The truck drove so quietly that as Dumphee pulled out onto the highway the only sounds were the beating of the windshield wipers, the pounding of rain on the cab, and Fugg's gentle snoring.

Dumphee drove long into the night, and the sound of the wipers thudded in time with the blood pounding through his veins, making a tune. In his mind, he put the tune to the fiddle and guitar, banjo and washboard and silently began to sing.

Windshield wipers pounding in the rain.
Wish I could see my sweetheart again.
It's getting late and the lights are low.
Driving in the darkness. Go, car, go.

He hadn't heard Jo Beth's voice in weeks, and he wondered if he could go find her. He longed to head back to the mountains. Aloud, he said the words "Bald Knob, West Virginia," and watched the map on the dashboard change colors.

The sight only made his heart ache.

Beside him, Lieutenant Fugg snored softly and grunted, "Anchovies and onions on that burger, sweetheart." Then he smiled pleasantly in his sleep.

Dumphee followed road signs toward Pennsylvania, heading for Pittsburgh and environs beyond. Somewhere in the night, he saw a sign: *You are now changing time zones. Set your clock back one hour.*

Everything was going fine until a siren shrieked in the cab and lights on the dashboard began flashing in shades of blue, green and red.

"Incoming!" Fugg screamed, flailing his arms, rising from his sleep. His eyes went wide. "We're on fire or something! This truck is on fire! What the hell is going on?"

Dumphee studied the dashboard. A mechanical voice announced, "Warning! Warning! You are low on gas. You are low on gas."

Dumphee said, "I, uh, think we're low on gas."

"Gas? Gas? All this noise for gas? Damn!" Fugg said, holding his heart, eyes wide. "I thought it must be a nuclear war."

The map flashed the route to the nearest gas station. Dumphee pulled off at a turnpike and headed into a small town, to an all-night gas station.

He pulled up to the pumps, got out and walked around the vehicle several times, looking for the gas tank. But Dumphee couldn't find it anywhere.

A little man with beady eyes watched Dumphee from a bulletproof gas booth, and after several minutes he came out.

"What the hell kind of vehicle is that?" he asked, his mustache twitching. He went and peered through the windshield to an ID plate on the dashboard, then read, "XM-666-AST—Am . . . Amphibious Swamp Truck."

Trying to be helpful, the fellow blurted, "Hey, you know, on some of these new cars and whatnot, they hide the gas tanks. Makes it harder for the thieves, I guess."

The attendant rushed around the back of the vehicle, pulled down the license plate. Sure enough, there was the gas tank.

The attendant glanced at the gas intake. "Just like the Army. No one else in the country can use leaded gas on new vehicles but the government."

He set the gas nozzle into the hole, began pumping and rushed round to his bulletproof booth for the next customer. Dumphee watched the meter on the tank for a long time. When it reached a hundred gallons, the attendant shouted at him, "Hey, buddy, you're taking my whole reserves!"

At a hundred and twenty gallons, the tank filled. Dumphee hung the nozzle back on the pump, got the military gas vouchers from the lieutenant, who said, "Make sure you get twenty in change."

Dumphee didn't know what he was talking about. The gas vouchers looked like huge checks, with three layers of carbon forms and a plastic credit card that had to be imprinted on the forms in order for them to be used. Most gas station attendants blew a gasket just looking at the things, not knowing how to use them. But they were only good for gas purchases. You couldn't get change from them.

But when he went to the booth, the attendant said, "How much change do you want?"

"Uh, twenty," Dumphee said.

The fellow expertly filled in the voucher, ran the card through the machine to imprint the form, had Dumphee sign the slips. The attendant had added $40 in "gas" to the sale. He handed Dumphee twenty in change and gave him a wink.

When Dumphee got back to the truck, Lieutenant Fugg grabbed the twenty from him and said, "Now, keep your eyes open for a McDonald's."

Dumphee started the swamp truck and floated it out onto the highway, looking for a McDonald's.

On the freeway, he saw a gray sedan with tinted windows heading east suddenly veer, do a U-turn, and head back toward him.

This wasn't a good sign; he began thinking of Russian spies.

In the driving rain, he pulled off the freeway and turned down a country road.

He hit the gas, hoping that if he got far enough ahead of the gray sedan, he'd lose it.

He glanced at Fugg. The lieutenant had closed his eyes and seemed unaware that Dumphee was going in the wrong direction.

I'm probably scared of nothing, Dumphee told himself. There really aren't any Russian spies behind me. He cranked up the engine. The ATV topped out at ninety-five miles an hour.

Dumphee glanced up at the map shining on his windshield. The narrow road he was on went on into Pittsburgh. In the rearview mirror, he couldn't see any headlights speeding toward him. Yet he suspected that the sedan might be there, sliding through the darkness like a shark beneath a wine-dark sea.

He reached down to the *Armaments* button on the dashboard, thought of pressing it, of getting ready for an attack. But what if that's just some civilian car, and I blow it up? he wondered. His finger hovered over the button.

Use the Force, Dumphee, he thought. Let go. Trust your feelings. Oh, this is dumb, he concluded.

He suddenly wondered if this truck had a radio, and studied the dashboard for a moment. A little music might help distract him, calm his racing heart. The ATV had an altimeter, gauges to show the air pressure in all six tires, gauges for oil, coolant,

engine temperature, transmission fluid, battery charge. But no radio. At least nothing but a military communications set, which wouldn't pick up FM.

Dumphee remembered the Sony Walkman in his duffel bag, pulled it out, put the headphones over his ears and flipped the radio on.

Futuristic rock came pounding from the speakers. He tried tuning to a bluegrass station—through some oldies channels—found Wagner's "Ride of the Valkyries" blaring.

Ahead he saw the friendly golden arches of a McDonald's. He glanced in his rearview mirror.

By the light of an oncoming car he thought he saw a flash of gray and chrome. His heart hammered. As he passed a streetlight, he saw clearly the gray sedan streaking up behind him, headlights off.

Dumphee jabbed a finger into the vehicle's *Armaments* button, and the machine gun rose into view. But mounted as it was on the front right fender, it couldn't swivel back and fire at something behind—not without blowing a hole big enough for a 'coon to scramble through right in Dumphee's chest. It only worked as a forward gun.

He pressed a button to arm the right rear missile tube. A computerized voice said, "Missile armed and searching for target."

He pressed the *Fire* button.

The computerized voice said, "Searching for enemy transponder frequencies. No enemy planes or tanks within a thirty-mile radius. Missile disengaged."

"Hell," Dumphee shouted at the stupid ATV, hoping that the voice recognition chip would understand. "There's a car right behind us! Blow that sucker up!"

The gray sedan veered left, as if to pass at a hundred miles per hour, and Dumphee saw the gray-tinted windows sliding down as the sedan began to draw even with him. A fellow pointed a machine gun out the window, and Dumphee realized that he didn't have so much as a rock handy to throw in self-defense.

He screamed loud enough to wake Fugg.

Dumphee dropped his Walkman, grabbed the wheel in both hands, hit the brakes and banked hard to the left, slamming his front fender into the sedan. The sedan went spinning into the oncoming lane.

Suddenly the ATV was hurtling off the road, two wheels on the sidewalk, speeding toward the McDonald's. The headlights played through the restaurant, shining on a playland filled with purple tunnels and nets. As the lights hit the front door, a fellow walking out the entrance dropped a breakfast roll and coffee.

We're going to hit! Dumphee thought. We're going to smash all them poor waitresses flatter than Egg McMuffins!

The tires squealed as the vehicle spun out of control. The big round wheels hit a speed bump in the parking lot. There was a rattle and a crash in the cargo hold, and Dumphee's forehead slammed into the steering wheel.

When Dumphee opened his eyes, a brilliant tangerine fog surrounded the truck, and the tang of ozone hung heavy in the air. The vehicle rolled through the odd vapors until gradually the fog dissipated. Dumphee cut the engine and just stared.

Just what he stared at... you'll find out on June 28th.

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A Very Strange Trip

Caught by police with moonshine in the trunk of his uncle's car, Everett Dumphee is faced with the decision to spend ten years in prison or enlist in the United States Army. He opts for what he thinks is freedom—a hitch in the Army.

Due to bureaucratic negligence, Dumphee—incorrectly labeled as the fastest bootleg driver in West Virginia—is issued the occupational specialty designation of Expert Truck Driver. Subsequently, he is selected for a top-secret assignment in a newly designed and state-of-the-art All Terrain Vehicle.

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